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ABSTRACT

This health careers guidance manual was developed to provide high school counselors, teachers, and students with information regarding health career opportunities and available training programs in Wisconsin. The content is in two volumes, with the first comprising two-thirds of the manual. Volume 1 begins with one-page job briefs on fifty-four jobs in sixteen health career areas. Each brief includes short descriptions of the work, employment opportunities and settings, educational requirements, and where to write for further information. The remaining portion of this first volume is devoted to health career program outlines, ranging from one to seventeen pages in length, for these fifty-four health career jobs; each outline includes some or all of the following: course information, recommended high school courses, course outline (includes course titles and credits for each year of the program) and brief course descriptions for each course in the program. Volume 2 begins with two appendixes. The first describes, in alphabetical order, the recommended courses in Wisconsin high schools, while the second contains specific competencies for some of the basic curriculum courses in health career programs at a technical college. A listing of college, university, and vocational technical school programs, as well as hospital education and training programs in Wisconsin, concludes this second volume. (EM)

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HEALTH CAREERS GUIDANCE MANUAL-ARTICULATION

..For the Greater Milwaukee Area and Wisconsin

FINAL REPORT PROJECT 09.039.150.318

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NATIONAL INSTITUTE OF
EDUCATION

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Volume I

1977-78

OFFICE OF CAREER EDUCATION
MILWAUKEE AREA TECHNICAL COLLEGE
MILWAUKEE, WISCONSIN 53203
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CE 018 777

The research reported herein was performed pursuant to a grant or contract with the Wisconsin Board of Vocational, Technical and Adult Education, partially reimbursed from an allocation of Federal funds from the U. S. Office of Education, U. S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent offical CESA 19, MATC District (9), State Board or U. S. Office of Education position or policy.

FOREWARD

This articulation of health careers project grew out of a general concern of the writers regarding the communication, cooperation and coordination between secondary and post-secondary schools in the academic training of students for a variety of occupational careers. More specifically, there was a recognized need for a more systematic and comprehensive approach directed towards the awareness, counseling and education of students in order to meet an increasingly greater demand for skilled personnel in the affiliated health career fields.

As used here, articulation of health careers means the process of transfer and progression of students from one level of educational offerings to the next level. The effective articulation between secondary and post-secondary offerings should insure a smoother transition for students, better continuity in programs, more efficient development of student abilities, and maximum use of school resources. It should minimize confusion, conflict and duplication of effort.

The main goal set down at the outset of this project was to publish a set of informational guidelines for use by students, parents, teachers, counselors and school administrators in devloping programs of studies between high school and college which will entail the least amount of duplication of effort while allowing for the best development of a student's potential. Through this project we hope to provide guidance to students who have an interest in or can be motivated toward a health career. In this manual we have tried to fill the gaps in existing health career publications and school counseling services which, for the most part, do not emphasize preferentially or adequately the specialized areas of the affiliated health career fields and, secondly, do not specifically provide an academic model for the coordinated advancement of students from secondary educational programs to post-secondary education and training.

This articulation project has one major objective which we have assigned a top priority to: TO provide individualized and personalized guidance and counseling for students, with differing academic potentials for the various health career fields, so they might achieve advanced placement and/or advanced standing in college based on the results from CLEP examinations of course competencies to be developed or already attained by the students in their secondary school education so as to assure as little lost motion and duplication of course work as possible.

The development of this Health Careers Guidance Manual, providing health career guidance information for the greater Milwaukee Area and Wisconsin, is our first effort in extracting and refining the pertinent information available and required for guidance and counseling in the health career fields. In the process of preparing this manual, we have attempted to review extensively and thoroughly the bulletins and catalogs of the teaching and training institutions in Wisconsin as well as the publications of the many health career associations which are listed as sources of information about health careers throughout this manual. We have strived to present the type of information which should be most useful to counselors, teachers, students and parents involved in career awareness, counseling and education. We anticipate the need for periodic revision and earnestly request that you provide us with your recommendations and suggestions for change, corrections or inclusions of additional information. Your comments will be welcomed and appreciated.

We would like to specially acknowledge Mr. Bernard D. Greeson, Dean of the Office of Career Education at the Milwaukee Area Technical College, and Mr. Robert Thompto, Career Education Supervisor for the West Allis-West Milwaukee School District, for their initial response to our general concern regarding the need for this articulation project and their assistance in promoting and coordinating this effort. We would like to thank, also, Marilyn Berman and Mary Nikolaus of the Career Education Office for their many hours of assistance in the typewritten preparation of the preliminary drafts and final manuscript.

Bruce Mohs
Bruce McKay

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HEALTH CAREER JOB BRIEFS

10

CERTIFIED LABORATORY ASSISTANT

DESCRIPTION OF WORK

Under the direct supervisor of the pathologist or medical technologist, the Certified Laboratory Assistant(CLA) performs routine laboratory procedures such as collecting blood specimens, grouping and typing blood, preparing and staining slides, and examining urine, blood and body fluids microscopically.

EMPLOYMENT

Population growth, research expansion, the trend toward preventive health care, and government health programs have resulted in an increased demand for trained laboratory personnel. Laboratory careers offer many opportunities for men and women and for individual abilities, aptitudes and interests. Through further education a certified laboratory assistant may advance to the position of medical laboratory technician. Certified laboratory assistants are employed most commonly in physicians' offices, medical clinics and hospitals.

EDUCATIONAL REQUIREMENTS

Certified laboratory assistants must complete a twelve month practical and technical training program at an accredited School for Certified Laboratory Assistants. All certified laboratory assistants must take an examination to qualify for certification by the Registry of Medical Technologists of the American Society of Clinical Pathologists, CLA (ASCP).

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O.Box 4387
Madison, Wisconsin 53711

Registry of Medical Technologists
American Society of Clinical Pathologists
P. O. Box 4862
Chicago, Illinois 60680

American Society for Medical Technology
Suite 200
5555 West Loop South
Houston, Texas 77401

American Medical Association
Dept. Of Allied Health Evaluation
535 North Dearborn Street
Chicago, Illinois 60610

American Medical Technologists
710 Higgins Road
Park Ridge, Illinois 60068

Board of Certified Laboratory Assistants
445 North Lake Shore Drive
Chicago, Illinois 60611

CYTOTECHNOLOGIST

DESCRIPTION OF WORK

Working under the supervision of a certified medical technologist/pathologist, the cyctotechnologist is specially trained in laboratory techniques to detect body cell changes which are important in the early diagnosis of cancer. After preparing and staining body cell samples, the cytotechnologist microscopically examines them to observe abnormalities which include irregularities in size, color or shape of the cell nucleus and cytoplasm which is crucial in the detection of cancer in its early state when it is curable.

EMPLOYMENT

Population growth, research expansion, the trend toward preventive health care, and government health programs have resulted in an increased demand for laboratory personnel. A laboratory career in cytotechnology offers opportunities for employment in public and private hospitals, medical clinics, and medical laboratories. Through continued education, a cytotechnologist may work up to the key medical laboratory position of medical technologists.

EDUCATIONAL REQUIREMENTS

To become a cytotechnologist, a student must have a minimum of two years of college training followed by twelve months of study at an accredited school of cytotechnology. They must pass a certifying examination given by the Registry of Medical Technologist of the American Society of Clinical Pathologists, CT (ASCP).

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Programs
P.O.Box 4387
Madison, Wisconsin 53711

Registry of Medical Technologists
American Society of Clinical Pathologists
P.O.Box 4862
Chicago, Illinois 60680

American Society for Medical Technology
Suite 200
5555 West Loop South
Houston, Texas 77401

American Medical Association
Dept. Of Allied Health Evaluation
535 North Dearborn Street
Chicago, Illinois 60610

American Society of Cytology
Health Sciences Center, Jefferson University
130 South 9th Street
Suite 1006
Philadelphia, Pennsylvania 19107

ELECTROCARDIOGRAPH (EKG) TECHNICIAN

DESCRIPTION OF WORK

The electrocardiograph technician operates the EKG machine which records heart actions which are important to the physician in the early detection of heart disease, as well as the determination of the seriousness and the precise diagnosis of heart disorders. The EKG technician operates the electrocardiograph machine in a medical laboratory or at the patient's bedside, attaching electrodes to specific areas of a patient's body and sends completed tracings to cardiologists or physicians for analysis and interpretation. The EKG technician must be able to recognize abnormal wave patterns that indicate physical changes in a malfunctioning heart which may require immediate medical attention.

EMPLOYMENT

EKG technicians are employed in hospitals, physicians' offices, medical clinics, and in some large industries.

EDUCATIONAL REQUIREMENTS

Formal educational training is not generally required, although some college education is preferred. Technicians are hired and then trained on-the-job in hospitals, clinics or other health care facilities. Special training usually includes a three to six month on-the-job program under the supervision of an experienced technician or a cardiologist.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Cardiology Technologists Association
Box 3425
Temple, Texas 76501

American Hospital Association
666 North Lake Shore Drive
Chicago, Illinois 60611

ELECTROENCEPHALOGRAPH (EEG) TECHNOLOGIST/TECHNICIAN

DESCRIPTION OF WORK

Electroencephalographic (EEG) technologists and technicians operate the EEG machine which records electrical brain activity and helps neurologists and neurosurgeons to diagnose and treat brain disorders such as strokes and tumors. The EEG technician is responsible for carrying out the actual recording of the patient's EEG activity. They attach small electrodes to the patient's scalp which are then connected to the EEG machine. The technician selects the combinations of electrodes and instrument controls which will provide the most meaningful record for interpretation by the medical staff. But the EEG technician's responsibilities involve more than the operation of the EEG machine. They work closely with the neurologist in studying characteristics, preparing graphs, and writing reports on brain wave patterns. They must also have a fundamental understanding of the equipment being used and of the diseases which are encountered in their work. EEG technologists usually have administrative, supervisory and teaching duties.

EMPLOYMENT

Job opportunities exist in hospital laboratories, in clinics, and in physicians' offices and in medical teaching centers.

EDUCATIONAL REQUIREMENTS

EEG technicians generally train on-the-job or in formal training programs given in clinics or hospitals. Students may also obtain technical training in programs lasting from six to twelve months, which include clinical experience, in technical institutes. Two year associate degree and one year certification programs are on the increase as necessary training for certification as a registered EEG technologist, upon successful completion of examination by the American Board of Registration of EEG Technologists and a year of practical experience.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Medical Association
Dept. of Allied Health Evaluation
535 North Dearborn Street
Chicago, Illinois 60610

American Society of Electroencephalographic Technologists
2997 Moon Lake Drive
West Bloomfield, Missouri 48033

HISTOLOGIC TECHNICIAN

DESCRIPTION OF WORK

The histologic technician prepares micro-thin sections of body tissue for examination by a pathologist. This processing includes fixation, dehydration, embedding, sectioning, decalcification and microincineration, mounting and staining. Pathologists then examine these tissue samples to determine if there are any abnormal characteristics.

EMPLOYMENT

Population growth, research expansion, the trend toward preventive health care, and government health programs have resulted in an increased demand for laboratory personnel. A laboratory career as a histologic technician offers opportunities for employment in hospitals, clinics, and medical laboratories.

EDUCATIONAL REQUIREMENTS

One year of intensive training in a clinical pathology laboratory is required. The student must then pass a certifying examination given by the Registry of Medical Technologists of the American Society of Clinical Pathologists, HT (ASCP).

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O.Box 4387
Madison, Wisconsin 53711

Registry of Medical Technologists
American Society of Clinical Pathologists
P.O.Box 4862
Chicago, Illinois 60680

American Society For Medical Technology
Suite 200
5555 West Loop South
Houston, Texas 77401

American Medical Association
Department of Allied Health Evaluation
535 North Dearborn Street
Chicago, Illinois 60610

MEDICAL LABORATORY TECHNICIAN

DESCRIPTION OF WORK

The medical laboratory technician performs a variety of clinical laboratory procedures under the direction and supervision of a physician and medical technologist. These procedures involve analyses and tests on laboratory specimens and samples involving hematology, serology, blood banking, urinalysis, parasitology, microbiology, and clinical chemistry. The medical laboratory technician assists the medical technologist in the more complex laboratory procedures.

EMPLOYMENT

Population growth, research expansion, the trend toward preventive health care, and government health programs have resulted in an increased demand for trained laboratory personnel. Laboratory careers offer many opportunities for men and women and for individual abilities, aptitudes and interests. Through further education, a medical laboratory technician may work up to the key position of medical technologist. Medical laboratory technicians are employed most commonly in physicians' offices, medical clinics, and hospitals.

EDUCATIONAL REQUIREMENTS

Medical laboratory technicans (MLT) must complete a two year associate degree program including supervised clinical experience in a medical laboratory and pass a certifying examination given by the Registry of Medical Technologists of the American Society of Clinical Pathologists, MLT (ASCP).

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Registry of Medical Technologists
American Society of Clinical Pathologists
P.O. Box 4862
Chicago, Illinois 60680

American Society for Medical Technology
Suite 200
5555 West Loop South
Houston, Texas 77401

American Medical Association
Dept. of Allied Health Evaluation
535 North Dearborn Street
Chicago, Illinois 60610

American Medical Technologists
710 Higgins Road
Park Ridge, Illinois 60068

National Committee for Careers
in The Medical Laboratory
9650 Rockville Pike
Rockville, Maryland 20014

MEDICAL TECHNOLOGIST - MT (ASCP)

DESCRIPTION OF WORK

Medical technologists are highly trained in laboratory skills and work under the direct supervision of a physician/pathologist in performing a large variety of laboratory tests that are important in determining the absence, presence or extent of a disease and its probable cause and cure. They are trained in all basic areas of laboratory work including chemistry, hematology, and microbiology. Using chemicals, reagents and complex instruments, they count blood cells, analyze blood factors, test body fluids, prepare tissue specimens, identify micro-organisms in air, milk, water and body materials, and trace cancer with vadionucleotides. The technologist's tools are complex: electronic counters, automatic analyzers, centrifuges, microscopes, autoclaves, spectrophotometers, colorimeters, microtomes and many more. Medical technologists are educated to understand the scientific theory behind the laboratory tests they perform, and they serve also to teach and supervise other laboratory technicians and assistants.

EMPLOYMENT

Population growth, research expansion, the trend towards preventive health care, and government health programs have resulted in an increased demand for trained laboratory personnel. Laboratory careers offer many opportunities for men and women and for individual abilities, aptitudes and interests. Medical technology was once a career primarily for women, but more and more men are entering the field today. Salaries for medical technologists are good and getting better as the demand increases and research turns up new, more demanding challenges for their skills. They are employed in clinical and bio-analytical laboratories of clinics, hospitals, doctor's offices, medical, dental and veterinary colleges, pharmaceutical companies, state and municipal public health departments, insurance companies, public and private research institutions, medical departments of industrial firms and federal government agencies.

EDUCATIONAL REQUIREMENTS

The minimum education needed to become a registered medical technologist is three years of college and one year of training in a hospital school of medical technology. Most college medical technology programs are four year which include one year of clinical "in-hospital" training as the senior year. The current trend is toward making this a five year program, with the student attending four years of college and an additional "in-hospital" training program for one year after college. All medical technologists must take an examination to qualify for certification by the Registry of Medical Technologists of the American Society of Clinical Pathologists, MT (ASCP).

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice

Health Careers Program
P.O.Box 4387
Madison, Wisconsin 53711

American Medical Association
Department of Allied Health Evaluations
535 North Dearborn Street
Chicago, Illinois 60610

American Medical Technologists
710 Higgins Road
Park Ridge, Illinois 60068

American Society for Medical Technologists
5555 West Loop South
Suite 200
Bellaire, Texas 77401

American Society of Clinical Pathologists
P.O.Box 4872
Chicago, Illinois 60612

NUCLEAR MEDICINE TECHNOLOGIST/TECHNICIAN

DESCRIPTION OF WORK

The field of radiologic medicine has progressed rapidly in recent years. Nuclear medicine technology is the newest branch of radiologic medicine. Nuclear medicine technologists and technicians work under a physician's supervision in using radioisotopes in disease diagnosis and treatment. They prepare and administer radioactive materials, position patients for diagnostic procedures, operate nuclear and radioscopic equipment, and prepare information received from the tests for the doctor's interpretation. Both the technologist and the technician are concerned with the safety of the patient, and they must be aware of and responsible for the dose levels of the radioisotopes administered to the patient during treatment as well as the safe storage and disposal of these materials and maintain an accountable inventory control of the radiopharmaceuticals used in the treatment center.

EMPLOYMENT

The majority of employment opportunities for nuclear medicine technologists and technicians exist in hospitals and medical centers; however, many positions are available in clinics, private offices, industry, civil service and public health agencies.

EDUCATIONAL REQUIREMENTS

Generally training programs are one or two years in length. The one year hospital training program is open to registered nurses, medical technologists, or radiologic (x-ray) technologists. Students entering nuclear medicine technology training after high school graduation may choose to enter a two year associate degree program or a four year baccalaureate degree program. Both degree programs and the hospital training program include clinical experience in a medical institution. Graduates of American Medical Association approved programs must pass a Nuclear Medicine Technology Registry examination before they are certified.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Society of Radiologic Technologists
500 North Michigan Avenue
Chicago, Illinois 60611

American College of Radiology
20 North Wacker Drive
Suite 2920
Chicago, Illinois

American Medical Association
Dept of Allied Health Evaluation
535 North Dearborn Street
Chicago, Illinois 60610

Society of Nuclear Medicine
475 Park Avenue South
New York, New York 10016

Technical Education Research Center
44 Brattle Street
Cambridge, Massachusetts 02138

RADIOLOGIC (X-RAY) TECHNOLOGIST

DESCRIPTION OF WORK

The field of radiologic medicine has progressed rapidly in recent years. The radiologic (x-ray) technologist assists the specialist physician (radiologist) in the use of x-ray films (radiographs) to examine patients for broken bones, ulcers, tumors, and diseases or malfunctioning of various organs. The technologist adjusts the x-ray equipment to the proper setting for specific examinations, positions the patient, and then makes the required number of radiographs. They also administer chemical mixtures to the patient so that certain organs show up clearly in diagnostic examinations, and also assume such clerical duties as filing radiographs for maintaining proper treatment records.

EMPLOYMENT

The majority of employment opportunities for radiologic (x-ray) technologists exist in hospitals and medical centers; however, many positions are available in clinics, private offices, industry, civil service and public health agencies.

EDUCATIONAL REQUIREMENTS

Two year associate degree programs are offered by many vocational-technical institutes in Wisconsin. In addition, numerous Wisconsin hospitals provide twenty-four month certification training courses. Some colleges and universities offer four year bachelor's degree programs in radiologic technology.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Society of Radiologic Technologists
500 North Michigan Avenue
Chicago, Illinois 60611

Department of Allied Medical Professions
and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

U.S. Atomic Energy Commission
Division of Technical Information
Extension
P.O. Box 62
Oak Ridge, Tennessee 37830

American College of Radiology
20 North Wacker Drive
Suite 2920
Chicago, Illinois 60606

DENTAL ASSISTANT

DESCRIPTION OF WORK

A dental assistant prepares the patient for examination or treatment and gives chair-side assistance to the dentist. They sterilize the necessary instruments, prepare solutions, make dental radiographs, and generally assist the dentist while the patient is in the dentist's chair. The dental assistant may also serve as the dentist's receptionist and administrator. Making appointments, handling business transactions, ordering supplied, keeping patients' histories, mailing monthly statements and maintaining tax records may all be part of the dental assistant's routine.

EMPLOYMENT

The dental office or clinic must be conducted with medical and administrative efficiency. Dentists rely on the talents of trained staff to help them fulfill their duties to patients and dental research. Dental assistants are employed in dentists' offices, dental clinics, and schools of dental assistants.

EDUCATIONAL REQUIREMENTS

Dental assistants are prepared either through a detailed on-the-job training program under the supervision of a dentist or through a special training course at a college or vocational-technical school. The significance of this specialty makes the latter method of training more desirable. The length of training is determined by the individual program, but it usually includes one academic year in theory and clinical application or a two year associate degree program. Requirements for certification include passing an examination given by the certifying board of the American Dental Association following successful completion of an accredited program of study.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Dental Assistants Association
211 East Chicago Avenue
Chicago, Illinois 60611

DENTAL HYGIENIST

DESCRIPTION OF WORK

Working under the supervision of a licensed dentist, dental hygienists clean and polish teeth by removing hard and soft deposits from the teeth, expose and process x-rays, give fluoride treatments, and educate patients about proper care of teeth and gums. Their duties may take them into public and private schools for further instruction in methods of maintaining dental health. They also inspect the mouth for defects and chart conditions of decay and disease for diagnosis and treatment by a dentist.

EMPLOYMENT

The dental office or clinic must be conducted with medical and administrative efficiency. Dentists rely on the talents of a trained staff to help them fulfill their duties to patients and dental research. Dental hygienists are employed in dentists' offices, schools and local health agencies, and schools for dental hygienists.

EDUCATIONAL REQUIREMENTS

The dental hygienist may choose between a two-year professional training course or two years of college coupled with two years of dental hygiene training. An associate degree in dental hygiene is awarded upon completion of the two year program. A four year student receives a baccalaureate degree in dental hygiene. The student must pass state and national board examinations to be qualified as a Registered Dental Hygienist.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Dental Hygienists Association
211 East Chicago Avenue
Chicago, Illinois 60611

Wisconsin Dental Hygienists Association
34365 Nickels Point Road
Oconomowoc, Wisconsin 53066

DENTAL LABORATORY TECHNICIAN

DESCRIPTION OF WORK

Dental laboratory technicians assume responsibility for the making and repairing of a variety of dental appliances according to the dentist's specifications. The work involves the construction of complete dentures as well as removable dentures, fixed bridges, crowns, inlays, and other corrective appliances. The dental laboratory technician uses many tools and techniques to make and repair dental restorations that improve a patient's appearance and comfort.

EMPLOYMENT

The dental office or clinic must be conducted with medical and administrative efficiency. Dentists rely on the talents of trained staff to help them fulfill their duties to patients and dental research. Dental laboratory technicians seldom see the persons for whom their work is intended, but their satisfaction is derived through their technical skill which enables them to complement the skills of the dentist. Dental laboratory technicians are employed in commercial dental laboratories, dental offices and various governmental agencies. Other employment opportunities are available in sales, research and education.

EDUCATIONAL REQUIREMENTS

Dental laboratory technicians are prepared through a two-year technical institute program in dental technology followed by on-the-job training. The student must pass an examination given by the National Board for Certification in Dental Technology to become a certified dental technician.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

National Association of Certified Dental Laboratories
3801 Mount Vernon Avenue
Alexandria, Virginia 22305

Commission On Accreditation
American Dental Association
211 East Chicago Avenue
Chicago, Illinois 60611

DENTIST

DESCRIPTION OF WORK

As an essential member of the health team, the dentist protects the community's health by preventing and treating diseases of the mouth, correcting and restoring defective teeth, and conducting research for even more effective health measures. The dentist determines the nature and cause of oral disease, restores teeth, performs oral surgery, treats abnormalities of the teeth and gums, prescribes and fits artificial teeth and dentures, and provides comprehensive dental health education to the patients. Through the application of scientific knowledge and methods acquired over the years of study and experience, the dentist overcomes the patients' oral deficiencies and gives them better health, greater well-being and social acceptance by improving their general physical appearance.

EMPLOYMENT

Because of the nature of dental practice, dentists are independent in that they can choose the location where they wish to set up a private practice and therefore be self-employed. Dentists enjoy security in knowing that their profession will always be in demand. Some dentists, therefore, choose work in dental research, dental education, public health and government agencies.

EDUCATIONAL REQUIREMENTS

Candidates for admission to any university School of Dentistry must present a minimum of three full years in an accredited college or university enrolled in a pre-dental curriculum. However, students who propose to study dentistry are encouraged to secure a college degree before beginning studies in Dental School, since they will be better prepared by education and maturity to master the professional studies and to become leaders in the communities which they will enter after graduation. A student aspiring to dental school must take a series of dental aptitude tests that measure abilities and aptitudes in the skills pertinent to the practice of dentistry. The dental school curriculum is a four year program leading to a DDS (Doctor of Dental Surgery) degree. Specialization requires an additional two or more years of training. The student must then pass state and national board examinations to be licensed as a dentist (DDS).

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O.Box 4387
Madison, Wisconsin 53711

Council on Dental Education
American Dental Association
211 East Chicago Avenue
Chicago, Illinois 60611

American Association of Dental Schools
1625 Massachusetts Avenue, N.W.
Washington, D. C. 20036

American Association of Orthodontists
7477 Delmar Boulevard
St. Louis, Missouri 63130

Wisconsin Dental Association
633 West Wisconsin Avenue
Milwaukee, Wisconsin 53203

DIETETIC TECHNICIAN

DESCRIPTION OF WORK

Dietetic technicians and dietetic assistants participate in food administration and nutritional care services. Under the supervision of a dietition or food services administrator, the technician supervises food production and service or plans menus based on established guidelines. The dietetic assistant, under the supervision of a dietitian or technician, processes dietary orders, helps patients select menus, and assists in the supervision of food production and service.

EMPLOYMENT

While most food service personnel find employment in hospitals, their services are increasingly in demand in various school food services; nursing, retirement, and children's homes; military services; and industrial and commercial organizations.

EDUCATIONAL REQUIREMENTS

Two years of educational training are required for dietetic technicians to complete the general education and technical training leading to an associate degree in nutritional care services or food service administration. One year of training is the minimum educational requirement for the dietetic assistant.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, WI 53711

The Hospital, Institution, and Educational Food Service Society
620 North Michigan Avenue
Room 420
Chicago, Illinois 60611

American Dietetic Association
620 North Michigan Avenue
Chicago, Illinois 60611

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

DIETITIAN

DESCRIPTION OF WORK

The dietitian, a specialist in the science of foods and the nutritional requirements of the human body, plays a vital role in the prevention of disease and the rapid recovery of the sick and injured. The dietitian, with the help of food service personnel, is responsible for the planning, directing, and preparation of meals in hospitals, schools, homes or other institutions wherever a nutritional specialist is needed. Dietetics is so broad a field that specialization is necessary. The teaching dietitian plans, organizes and conducts courses in dietetics for college students, dietetic interns, nursing students, patients, and dietetic personnel. The research dietitian works with patients, physicians, nurses, and chemists in the study of nutrition. Responsibility for preparing and serving food to personnel and patients, managing the department, purchasing supplies, and supervising food service personnel is the job of the administrative dietitian. The clinical dietitian is directly concerned with planning special menus for patients with definite nutritional needs. The community health dietitian translates scientific knowledge about nutrition into simple, specific information the people will find interesting, understandable, convincing and practical.

EMPLOYMENT

While most dietitians find career opportunities in hospitals, their services are increasingly in demand in university and school food services; nursing, retirement, and children's homes; military services; and industrial and commercial organizations. Some are self-employed as consultants, working closely with physicians who have patients needing special nutritional guidance.

EDUCATIONAL REQUIREMENTS

A minimum of four years' college education with a major in dietetics, nutrition, or home economics is required to become a dietitian. An additional year of study, internship and traineeship in an approved hospital must follow. There are some coordinated college programs which include internship with the undergraduate studies.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Dietetic Association
620 North Michigan Avenue
Chicago, Illinois 60611

Wisconsin Dietetic Association
Division of Health
5709 Odana Road
Madison, Wisconsin 53719

NUTRITIONIST

DESCRIPTION OF WORK

Nutritionist is a general occupational title for health professionals concerned with food science and human nutrition. Nutritionists devote the major part of their time to teaching people about proper nutrition and to consultation work. They may often be engaged in nutrition research (including foods development) and health surveys.

EMPLOYMENT

Nutritionists find employment opportunities mainly in hospitals, but their services are increasingly in demand in university and school food services, nursing homes, retirement homes, military services, and industrial and commercial organizations. Some are self-employed as consultants, working closely with physicians and health care agencies in providing special nutritional guidance for patients.

EDUCATIONAL REQUIREMENTS

Generally a four year bachelor's degree in home economics, nutrition, dietetics or food science would provide an educational foundation in nutrition. Master's degrees are available in public health nutrition and nutrition. A graduate degree may be required by some employers for public health positions.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Dietetic Association
620 North Michigan Avenue
Chicago, Illinois 60611

Wisconsin Dietetic Association
Division of Health
5709 Odana Road
Madison, Wisconsin 53719

Association of Schools of Public Health
1825 K Street, N.W.
Suite 707
Washington, D.C. 20006

ENVIRONMENTAL HEALTH TECHNOLOGIST/TECHNICIAN

DESCRIPTION OF WORK

Environmental health technologists/technicians assist the environmental health specialists in the technical aspects of environmental health programs designed to improve the environment and its effect on public health. Specific duties vary with the place of employment, but generally, environmental health technologists/technicians engage in a wide range of activities. These may include obtaining samples of air, water, and food and assisting in performing tests and collecting data on the quality of these. They also inspect and evaluate facilities and services used by the public to determine compliance with laws and regulations.

EMPLOYMENT

The supply of environmental health technologists/technicians has not kept up with the demand created by increasing population, urbanization and industrialization. They are employed by state and local health departments, air pollution control agencies, water purification plants, wastewater treatment plants, solid waste collection and disposal units, radiation protection units, consulting firms, and a variety of business and industrial firms concerned with environmental control.

EDUCATIONAL REQUIREMENTS

Completion of a two year associate degree program in an environmental field and appropriate field experience are the minimum educational requirements for the environmental technician. The two year curriculum provides general technical environmental instruction; however, specialized courses are available. A four year college program leading to a bachelor's degree is necessary for certification as an environmental health technologist and is necessary for advancement to higher job classifications and responsibilities.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

National Environmental Health Association
1600 Pennsylvania Avenue
Denver, Colorado 80203

Wisconsin Environmental Health Association
1627 Meadowcrest
Middleton, Wisconsin 53562

Association of Schools of Public Health
1825 K Street, N.W.
Suite 707
Washington, D.C. 20006

Environmental Management Association
1701 Drew Street
Clearwater, Florida 33515

PUBLIC HEALTH WORKER

DESCRIPTION OF WORK

An effective health program is not concerned exclusively with the treatment of the sick, injured and disabled. Prevention of illness is a component of the total health care delivery system. Health maintenance is one of society's dominant values. The prevention of illness and promotion of good health practices is reflected in the work of public health professionals. Public health includes all services that are directed toward protection and promotion of health in a community. To these ends, involvement in public health is not restricted to individuals with one specific type of education or training. Many people with diversified skills and competencies cooperate to implement a total public health program. Although in reality it is not possible to isolate the specific areas of concern of each public health worker, their areas of concentration can be broadly defined as (1) those involved with the overall environment; (2) those dealing with such mini-environments as the home, school, work, or recreation areas; and (3) those concerned with the products and services we consume.

EMPLOYMENT

The supply of qualified public health workers has not kept up with the demand created by increasing population, urbanization and industrialization. Increasing scientific knowledge that can be applied to public health services is also causing a manpower gap. Public health workers are employed by state and local health departments, where the bulk of public health work is carried out. Other employers include the U.S. Public Health Service, hospitals, colleges and universities, industries, and overseas agencies involving Project Hope and the World Health Organization.

EDUCATIONAL REQUIREMENTS

The educational requirements for public health workers is dependent upon the specific profession for which one has chosen as a career. Some public health professions require a two year associate degree education while other professions require a four year baccalaureate degree education. A four year B.S. degree in Environmental and Public Health is offered at some universities. Graduate study leading to a Master of Public Health or related to some professional specialty area is also desirable for administrative positions and will enhance one's professional competence.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, WI 53711

National Environmental Health Association
1600 Pennsylvania Avenue
Denver, Colorado 80203

American Public Health Association
1015 18th Street, N.W.
Washington, D.C. 20036

SANITARIAN

DESCRIPTION OF WORK

Sanitarians are environmental health specialists that plan, organize, manage, execute and evaluate all facets of environmental health programs to improve the quality of air, water, food and other environmental factors which affect our health. They also promote public awareness of environmental health hazards and enforce environmental health laws.

EMPLOYMENT

The supply of environmental health workers has not kept up with the demand created by increasing population, urbanization and industrialization. Environmental health workers are employed by state and local health departments. Other employers include the U.S. Public Health Service, hospitals, colleges and universities, industry, and overseas agencies including the World Health Organization.

EDUCATIONAL REQUIREMENTS

A baccalaureate degree with emphasis on environmental health will qualify an individual for employment in some entry level positions. As experience is gained through field work and supervisory responsibilities, advancement to higher job classifications can be achieved. Personnel trained in the basic science fields can specialize in various health science areas. Graduate study leading to a Master of Public Health or related to some specialty area is also desirable for administrative positions and will enhance one's professional competence.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

National Environmental Health Association
1600 Pennsylvania Avenue
Denver, Colorado 80203

Association of Schools of Public Health
1825 K Street, N.W.
Suite 707
Washington, D.C. 20006

Environmental Management Association
1701 Drew Street
Clearwater, Florida 33515

Wisconsin Environmental Health Association
1627 Meadowcrest
Middleton, Wisconsin 53562

WATER AND WASTEWATER TECHNOLOGIST/TECHNICIAN

DESCRIPTION OF WORK

Water and wastewater technologists/technicians assist engineers, sanitarians and other public health officials in the planning and operation of water processing operations and wastewater treatment plants. They work to remove pollutants and contaminants from the water supply and assure the public a water supply safe for consumption.

EMPLOYMENT

Water and wastewater technologists/technicians are employed by municipal water purification and wastewater treatment plants, as well as a variety of business and industrial firms concerned with environmental control.

EDUCATIONAL REQUIREMENTS

A minimum of two years of education is the necessary training for certification as a water and wastewater technician. Four-year programs for technologist certification are also available and are necessary for advancement to higher job classifications and responsibilities.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Wisconsin Environmental Health Association
1627 Meadowcrest
Middleton, Wisconsin 53562

National Environmental Health Association
1600 Pennsylvania Avenue
Denver, Colorado 80203

Association of Schools of Public Health
1825 K Street, N.W.
Suite 707
Washington, D.C. 20006

Environmental Management Association
1701 Drew Street
Clearwater, Florida 33515

COMMUNITY HEALTH EDUCATOR

DESCRIPTION OF WORK

It is the function of the community health educator to give the public at large the facts about health and disease so they will act for their own well-being and that of their families. As a member of the public health team, the community health educator works with many community groups stimulating people to recognize health problems and strive for their solution. They organize and conduct educational group meetings; write pamphlets, newspaper articles and reports for publication; prepare and conduct exhibits; plan and conduct community surveys. They are concerned with such problems as sanitation, mental health, family life education, child growth and development, nutrition, safety, and communicable diseases. The community health educator is a modern pioneer seeking new understanding into human behavior, new ways to apply this knowledge in health education, and new approaches to building stronger and healthier communities.

EMPLOYMENT

Community health educators find employment opportunities in local and state health departments, voluntary health agencies, hospitals and government agencies, health councils, or in agricultural extension programs.

EDUCATIONAL REQUIREMENTS

A four year bachelor's degree in health education is generally the minimum requirement for professional positions in the public health field. This education prepares students for beginning jobs in some health agencies, as well as for graduate study. A master's degree in public health or community health education is generally the requirement for leadership positions in the public health field.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Association for the Advancement
of Health Education
1201 16th Street, N.W.
Washington, D.C. 20036

Association of Schools of Public Health
1825 K Street, N.W.
Suite 707
Washington, D.C. 20006

Society for Public Health Educators
693 Sutter Street
San Francisco, California 94102

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SCHOOL HEALTH EDUCATOR

DESCRIPTION OF WORK

It is the function of the school health educator to give students the facts about health and disease so they will act for their own well-being and that of their future families. They teach elementary, secondary and college students the principles of personal, community, consumer, and environmental health and about factors like alcohol abuse, drugs, smoking, fitness, nutrition, pollution and disease which affect health.

EMPLOYMENT

School health educators are employed mainly in public and private schools, colleges and universities.

EDUCATIONAL REQUIREMENTS

Requirements vary state by state, but most states require school health educators to meet their regular teacher certification standards. This generally requires a minimum of four years of college and a bachelor's degree in health education or a related area. A master's degree in health education may be required for some positions.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Society for Public Health Education
655 Sutter Street
San Francisco, California 94102

American School Health Association
Box 708
Kent, Ohio 44240

Association For The Advancement Of Health Education
1201 16th Street, N.W.
Washington, D.C. 20036

MEDICAL RECORDS ADMINISTRATOR

DESCRIPTION OF WORK

The medical records administrator is responsible for establishing and maintaining a health records system that can provide medical information about a patient to the doctors and nurses. The duties of a medical records administrator include the organization of a workable system of record keeping, design or appropriate forms which will contain the necessary patient information, design and maintenance of an efficient filing system, and supervision of the distribution of this information to authorized individuals in the medical care setting. Medical records administrators are highly involved in the process of patient care evaluation, working with physicians to develop criteria, compile statistics, and conduct medical audits. Medical records contain medical and surgical information of the patient, results of physical examinations, physician's orders and progress notes, nurses notes, and reports of all laboratory tests conducted in the medical setting.

EMPLOYMENT

Medical record administrators are in demand in hospitals, clinics, health agencies, government agencies, and educational institutions.

EDUCATIONAL REQUIREMENTS

At least four years of study after high school is required to become a professional registered medical records administrator; a four year bachelor's degree program in medical records administration is most common. Students with an undergraduate degree may also enter twelve month hospital certificate schools for accreditation as a medical records administrator. Upon completion of the professional training in a school or hospital, the graduate is eligible to take the AMRA National Registration Examination for the designation RRA - Registered Record Administrator.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Medical Record Association
875 North Michigan Avenue
Suite 1850
Chicago, Illinois 60611

Department of Allied Medical Professions
And Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

MEDICAL RECORDS TECHNICIAN/TRANSCRIPTIONIST

DESCRIPTION OF WORK

The medical records technician/transcriptionist is a member of the medical records team in a health care facility. The technician/transcriptionist works closely with medical records administrators, hospital and health facility administrators, physicians, nurses, and other health personnel. Technicians assist the physician in the preparation of daily reports, transcribing patient histories and progress reports, and reports of physical examinations and tests. In addition, medical records technicians are responsible for checking the patient's record to be sure that the required information is completely recorded, accurate and according to the prescribed standards, and coded according to the accepted diagnostic nomenclature. Transcriptionists help in the preparation and typing of medical reports dictated by doctors or other members of the professional health team.

EMPLOYMENT

Trained medical records technicians/transcriptionists are in great demand in hospitals, clinics, extended health care facilities, physician's offices and health agencies.

EDUCATIONAL REQUIREMENTS

The position of medical records technician requires a two-year associate degree education in an approved college or technical institution. Some hospitals offer an educational/training program in medical records technology. A correspondance course in medical records technology is also offered by the American Medical Record Association. Only graduates of approved schools for medical record technicians, or those who successfully complete the AMRA correspondance course, may qualify to take the accreditation examination for the designation ART - Accredited Record Technician. Medical record transcriptionists usually train on-the-job in a health facility.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Medical Record Association
875 North Michigan Avenue
Suite 1850
Chicago, Illinois 60611

Department of Allied Medical Professions And Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Health Care Association
1200 15th St., N.W.
Washington, D.C. 20005

MEDICAL SECRETARY/STENOGRAPHER/CLERK-TYPIST

DESCRIPTION OF WORK

The medical secretary/stenographer/clerk-typist has duties similar to those of a person in a similar position in any business or profession. Their duties include answering the telephone, making appointments, acting as a receptionist, mailing, routine correspondance, financial billings, and supply requisitioning. But all of their specific duties have a generally medical side. Their work involves medical recordkeeping, interviewing patients for their medical background in preparation for the physician's examination, and the preparation and filing of the patient's medical records. They may use office machines as they take dictation, transcribe information, and type letters and records. In summary, the medical secretary/stenographer/clerk-typist works with the professional health care team and medical records administrators and technicians/transcriptionists in clerical and administrative work to insure that complete, accurate records are kept for each patient in a health care facility.

EMPLOYMENT

Medical secretaries/stenographers/clerk-typists are employed in medical clinics, hospitals, physician's offices, and public and private health care agencies. Salaries are comparable with those of privately employed persons in business and government.

EDUCATIONAL REQUIREMENTS

Any education or training that strengthens a person's business skills and knowledge of science, medical and laboratory terms is helpful. There are different routes to obtaining post-high school education/training. Some persons find employment while training on-the-job in a health care facility. One-year medical stenographer programs and clerk-typist programs are offered by certain vocational-technical schools and hospitals. A two-year associate degree program in medical secretary science is offered by vocational-technical schools also.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Health Care Association
1200 15th Street N.W.
Washington, D.C. 20005

American Medical Association
Department of Allied Health Evaluation
535 North Dearborn Street
Chicago, Illinois 60610

HEALTH CARE ADMINISTRATOR

DESCRIPTION OF WORK

The health care administrator is the chief administrative executive responsible for the overall management of all phases of a health care facility. The administrator's concern is not only with the professional services which are needed to make patients well but also with financing, systems analysis, data processing, personnel management, public relations, purchasing, engineering and maintenance, housekeeping, volunteer services, and office operations within the health care facility. They are mainly responsible for establishing fixed routines, acting as a liason in all matters of administration, providing facilities for all departments, and promoting the welfare of the personnel. In matters of hospital policy, the administrator works under the direction of the board of trustees and works closely with the medical staff to provide the best possible health environment for patient welfare and care.

EMPLOYMENT

Hospitals, nursing homes, planning agencies, group practices, public health agencies, governmental regulatory agencies, neighborhood clinics, rehabilitory agencies and other health organizations are some of the health services within the complex health delivery system that require formally trained health care administrators. The demand for good health administrators is great, and expanding health care will further increase this demand. The future looks bright for careers in health administration.

EDUCATIONAL REQUIREMENTS

The minimum educational requirement to prepare an individual for a beginning, middle management position in health care administration is a four-year undergraduate degree with a broad emphasis in liberal arts education. Some schools offer an undergraduate degree program in health services administration or public health which prepare a student for graduate study in health services administration. The graduate program generally consists of two years. A master's degree in hospital or health administration is required for upper level management positions, and recent graduates with a degree in this field are usually appointed administrative assistants or department heads.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Director, Programs in Health Services Administration
University of Wisconsin
1225 Observatory Drive
Madison, Wisconsin 53706

American College of Hospital Administrators
840 North Lake Shore Drive
Chicago, Illinois 60611

Association of University Programs in Hospital Administration
One Dupont Circle
Suite 420
Washington, D.C. 20036

American Academy of Health Administration
P.O. Box 5518
Texarkana, Texas 75503

American College of Nursing Home Administrators
4650 East-West Highway
Washington, D.C. 20014

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

MEDICAL OFFICER, MID-MANAGEMENT

DESCRIPTION OF WORK

Modern health care facilities require a sound organizational structure to operate efficiently and effectively. Mid-management officers are vital to the operation of the following departments in health facilities and agencies: accounting, personnel, public relations, central supply, security, maintenance, finance, business, data processing, volunteer services, patient admissions, housekeeping and clerical. The mid-management officers in these departments are responsible for carrying out the administrative decisions of their superiors in matters of policy to provide the best possible environment for patient care.

EMPLOYMENT

Expanding health care is increasing the demand for good health care administration. Hospitals, nursing homes, planning agencies, group practices, public health agencies, governmental regulatory agencies, neighborhood clinics, rehabilitory agencies and other health organizations are some of the health services within the complex health delivery system that require mid-management level officers.

EDUCATIONAL REQUIREMENTS

The education required for a mid-management level position in health care administration depends on the job and the employer. At least two years of formal education beyond high school is required, although a four-year degree in business or management is preferred. A two-year program in medical mid-management is offered by some schools.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Director, Programs in Health Services
Administration
University of Wisconsin
1225 Observatory Drive
Madison, Wisconsin 53706

American College of Hospital Administrators
840 North Lake Shore Drive
Chicago, Illinois 60611

Association of University Programs
in Hospital Administration
One Dupont Circle
Suite 420
Washington, D.C. 20036

American Academy of Health Admin.
P.O. Box 5518
Texarcana, Texas 75503

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

WARD CLERK

DESCRIPTION OF WORK

The ward clerk works in a patient care unit, under the supervision of the professional nurse in charge of the unit. They perform selected tasks in patient care or related duties which supplement the work of the professional staff to keep the hospital or health care facility operating smoothly and efficiently. The ward clerk relieves the professional staff of much of the clerical work. As a receptionist, the ward clerk directs visitors to patient rooms and takes and relays telephone messages. The ward clerk may prepare patient charts and distribute them to doctors as they make their rounds. The ward clerk may also include recordkeeping and report writing among their duties.

EMPLOYMENT

For a person considering a career in the health field and wishing to gain some experience in a health care facility, the position of ward clerk offers this chance. Employment opportunities exist in public and private hospitals, health clinics, and nursing homes.

EDUCATIONAL REQUIREMENTS

On-the-job training offered by the health care facility in which employment is being sought is one method of securing the educational training needed. Diploma programs offering specialized training are part of the curriculum in many vocational-technical schools.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O.Box 4387
Madison, Wisconsin 53711

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

American Hospital Association
840 North Lake Shore Drive
Chicago, Illinois 60611

EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC)

DESCRIPTION OF WORK

Emergency medical technicians respond to medical emergencies and provide immediate and efficient care to the critically ill or injured, and transport the patient to a medical facility. They may administer cardiac resuscitation, treat shock, provide initial care to poison or burn victims, or perform other life-saving procedures. Those emergency medical technicians with advanced training hold the EMT-paramedic rating. These EMT's work on mobile intensive care vehicles under a physician's direction through voice contact relayed from a medical center. They may administer drugs intravenously or use a defibrillator to shock a stopped heart into action. EMT's who direct ambulances or mobile intensive care vehicles to emergency sites hold the EMT-dispatcher rating.

EMPLOYMENT

Most EMT's serve on municipal, private or volunteer emergency or rescue services or are employed primarily as fire, police, safety or health personnel. This, however, is changing. Paid EMT employment is increasing, especially for EMTs-paramedic and dispatcher.

EDUCATIONAL REQUIREMENTS

Emergency medical technicians complete a basic 81 hour course approved by the U.S. Department of Transportation (USDOT). In addition, the EMT-dispatcher rating requires a 2 day communication course; the EMT-paramedic rating requires a minimum 500 hour USDOT approved course with 6-12 months prior EMT experience. The basic and dispatcher course is given by hospitals, community colleges, fire, health and police departments. Advanced training is given by hospitals. A few two-year associate degree programs exist.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

National Registry of Emergency Medical Technicians
1395 East Dublin-Granville Road
P.O. Box 29233
Columbus, Ohio 43229

American Medical Association
Dept. of Allied Health Evaluation
535 North Dearborn Street
Chicago, Illinois 60610

U.S. Department of Transportation
Emergency Medical Services Branch
N - 42-13
Washington, D.C. 20540

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MEDICAL ASSISTANT/PHYSICIAN'S ASSISTANT

DESCRIPTION OF WORK

The medical assistant performs a variety of administrative and clinical functions in a doctor's office. Their administrative duties include scheduling and receiving patients, maintaining medical records, handling telephone calls and correspondence, purchasing and maintaining supplies and equipment, and responsibility for insurance matters, office accounts and patient billing and collection. As a clinical assistant to the physician, and under the physician's direction, the medical assistant assists in the examination and treatment of the patient and performs simple laboratory and diagnostic tests. They help to prepare patients for physical examinations, sterilize instruments and set up equipment, take temperatures, measure height and weight, and perform other routine laboratory tests and similar technical tasks. The medical assistant has some of the skills of the medical technologist, but lack the specialized training of the latter. The physician's assistant is a skilled person, qualified by academic and clinical training to provide patient services under the supervision and responsibility of a physician. They perform diagnostic and therapeutic tasks which allow physicians to extend their services through the more effective use of their knowledge, skills, and abilities. They may perform complete physical examinations, give treatment, prescribe certain drugs and medications, and counsel patients on their health problems.

EMPLOYMENT

The medical assistant and physician's assistant are employed in physician's office hospitals, and medical clinics.

EDUCATIONAL REQUIREMENTS

The minimum length of educational training beyond high school for medical assistnats is one year. Most medical assistants train in one-year hospital certificate programs or two-year associate degree programs in colleges, universities, and vocational-technical schools. Students must also receive practical experience in a clinical setting under medical supervision. Students may apply for certification upon graduation, provided the institution attended has been accredited by the American Medical Association in cooperation with the American Association of Medical Assistants (AAMA). Formal education programs for physician's assistants are provided by medical colleges, universities, state and private colleges, and hospitals. While most programs train students for general medicine, there are special physician's assistant programs. Urologic physician assistant, surgeon's assistant, and pediatric assistant are common examples. Educational programs are commonly two years in length and award a certificate and/or an associate degree. Variations in the length of the educational program and the length of time an individual spends in the program depend on the student's prior education and experience in the health care field. Many programs give reference to military veterans with medical corpsman experience, or to personnel with patient care experience and a science background. Bachelor's degree programs are available for students with two years of prior college education.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Wisconsin Society of the American Association of Medical Assistants
4403 Dwight Drive
Madison, Wisconsin 53704

American Association of Medical Assistants
One East Wacker Drive
Chicago, Illinois 60601

Department of Allied Medical Professions and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Academy of Physician's Assistants
2341 Jefferson Davis Highway
Suite 700
Arlington, Virginia 22202

American Academy of Pediatrics
1801 Hinman Avenue
Evanston, Illinois 60204

PHYSICIAN: DOCTOR OF MEDICINE (MD)/DOCTOR OF OSTEOPATHY (DO)

DESCRIPTION OF WORK

The prime responsibilities of the physician are the diagnosis and treatment of human illness, disease or injury through preventive as well as restorative medicine. They use all accepted methods of medical science including drugs, therapy and surgery to promote the lives and well-being of all citizens. There are two types of physicians: the Doctor of Medicine (MD) and the Doctor of Osteopathy (DO). MD's and DO's may practice medicine in one of as many as thirty-five specialty areas. Some examples of specialists are: Family Practitioner, Surgeon, Opthamologist, Pediatrician, Radiologist, Orthopedist, Psychiatrist, Obstetrician, Gynecologist, Cardiologist, Internist and Urologist.

EMPLOYMENT

Physicians are predominately self-employed, but they may go into research, teaching, institutional medicine, military service, administration, governmental agencies or public health. In addition to monetary benefits, the physician holds a position of esteem and responsibility in the community.

EDUCATIONAL REQUIREMENTS

The first step in a medical education is the undergraduate preparation. Generally the minimum entrance requirement for medical or osteopathic schools is three years of pre-medical college education; most entering students, however, are college graduates with a baccalaureate degree. Approximately half of the four-year medical school program is devoted to the study of the basic physical and life sciences. The second half of the program is conducted in the hospital, gaining clinical experience working with patients, under the close supervision of hospital residents, physicians and medical school faculty. Completion of medical school is recognized by the awarding of an M.D. or D.O. degree. The student then must take a one-year internship in an approved teaching hospital and then pass a state licensing examination. Many physicians then go directly into a three-year residency program leading to certification as a medical specialist.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

State Medical Society of Wisconsin
P.O. Box 1109
Madison, Wisconsin 53701

American Medical Association
Research and Education Foundation
535 North Dearborn Street
Chicago, Illinois 60610

Association of American Medical Colleges
One Dupont Circle, Northwest
Washington, D.C. 20036

American Academy of Family Physicians
1740 West 92nd Street
Kansas City, Missouri 64114

American Academy of Pediatrics
1801 Hinman Avenue
Evanston, Illinois 60204

American Association of Opthamology
110 17th Street, N.W.
Washington, D.C. 20036

American College of Obstetricians and Gynecologists
One East Wacker Drive
Chicago, Illinois 60601

American College of Radiology
20 North Wacker Drive
Suite 2920
Chicago, Illinois 60606

American College of Surgeons
55 East Erie Street
Chicago, Illinois 60606

American Osteopathic Association
212 East Ohio Street
Chicago, Illinois 60611

American Psychiatric Association
1700 18th Street, N.W.
Washington, D.C. 20009

ART THERAPIST

DESCRIPTION OF WORK

Art therapists devise programs which use their specific artistic talents and health skills to effect positive change in the mental and social well-being of people. Though they work primarily with the emotionally disturbed, mentally retarded and learning disabled, they may also work with normal children and adults. Art therapy provides the opportunity for non-verbal expression and communication. There are two major approaches to the use of art as a therapeutic tool. As a creative process, it can be used to reconcile emotional conflicts and to foster self-awareness and personal growth. When using art as a vehicle for psychotherapy, both the product and the associative references may be used in an effort to help the individual find a more compatible relationship between their inner and outer worlds. Art therapy can be used either as an adjunctive or primary therapy; or it may be used in diagnosis and evaluation of individuals, groups and families. Many art therapists function as an integral member of a therapeutic team while others serve as consultants or conduct a private practice.

EMPLOYMENT

Presently there are numerous settings which provide opportunities for the employment of art therapists. These institutions include regular state and private hospitals, psychiatric hospitals, residential treatment centers, schools for the retarded and emotionally disturbed children, Veteran's Administration hospitals, out-patient clinics, penal and correctional institutions. Creative practitioners continue to develop new job opportunities for the application of art therapy.

EDUCATIONAL REQUIREMENTS

Entrance into the field of art therapy on the professional level generally requires a master's degree. The undergraduate degree for preparation to the graduate level should be in the areas of the fine arts and the behavioral and social sciences.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Art Therapy Association
Harding Hospital
445 East Granville Road
Worthington, Ohio 43085

American Art Therapy Assoc.
c/o Intermanagement
One Cedar Boulevard
Pittsburgh, Pennsylvania 15228

National Association for Mental Health
1800 North Kent Street
Arlington, Virginia 22209

MUSIC THERAPIST

DESCRIPTION OF WORK

Music therapists devise programs which use their specific artistic talents and health skills to effect positive change in the mental and social well-being of people. Though they work primarily with the emotionally disturbed, mentally retarded and learning disabled, they may also work with normal children and adults. Music therapy is the scientific application of music, as directed by the music therapist in a therapeutic environment, to influence changes in behavior. Such changes enable the individuals undergoing treatment to experience a greater understanding of themselves and the world about them, thereby achieving a more appropriate adjustment to society. As a member of the therapeutic team, the professional music therapist participates in the analysis of individual problems and in the projection of general treatment aims before planning and carrying out specific musical activities. Periodic evaluations are made to determine the effectiveness of the procedures employed.

EMPLOYMENT

Music therapists are in demand by neuropsychiatric hospitals, children's hospitals, hospitals for physically and mentally handicapped, mental retardation centers, community mental health centers, and nursing homes. Special education departments within some school systems are adding music therapists to their staffs. In addition to the traditional clinical settings, research and preventive therapy are new fields of music therapy open for investigation. Emerging areas for the application of music therapy techniques are industry, sports, aerospace technology, and agriculture.

EDUCATIONAL REQUIREMENTS

The required baccalaureate degree in music therapy permits an in-depth study of music and a general survey of the humanities and social sciences. Following the four-year bachelor's degree program, most schools require a clinical training period of six months in an approved music therapy program before the degree in music therapy is granted. Eligibility for registration with the National Association for Music Therapy requires successful completion of the clinical internship. Certain schools offer master's degrees in music therapy.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

National Association for Music Therapy
P.O. Box 610
Lawrence, Kansas 66044

American Association for Music Therapy
Education Building
35 West Fourth Street
New York, New York 10003

National Association for Mental Health
1800 North Kent Street
Arlington, Virginia 22209

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OCCUPATIONAL THERAPIST

DESCRIPTION OF WORK

Occupational therapists provide health services to people whose occupations or way of life have been disrupted by physical injury or illness, developmental problems, the aging process and social or psychological difficulties. Through the use of selected educational, vocational and rehabilitation activities the OT's help patients overcome, correct or adjust to their particular problem. OT's may help someone to relearn daily living skills like dressing, cooking or using transportation. They may teach or adapt job skills for the disabled or help a child develop better eye-hand coordination. Under the guidance of a physician, occupational therapists help individuals to reach the highest functional levels possible, become self-reliant and build a balanced life style of work and leisure.

EMPLOYMENT

Occupational therapists serve a wide population in a variety of settings such as hospitals and clinics, rehabilitation centers, psychiatric clinics, special schools, military hospitals, nursing homes, sheltered workshops, home care programs, housing projects, community agencies and clinics, and faculties of both professional and technical institutions. Occupational therapists both receive from and make referrals to the appropriate health, educational or medical specialists.

EDUCATIONAL REQUIREMENTS

Four years of college training leading to a bachelor of science degree in occupational therapy are required. In addition, six to nine months of clinical experience including patient contact must be served in a hospital or treatment center. Certificate and master's degree programs are available for those already holding a bachelor's degree in other areas. Registration as a professional occupational therapist follows the successful completion of a bi-annual examination given by the American Occupational Therapy Association.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Occupational Therapy Association
6000 Executive Boulevard
Suite 200
Rockville, Maryland 20852

Wisconsin Occupational Therapy Association
9 Leyton Circle
Madison, Wisconsin 53713

Department of Allied Medical Professions
and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

National Association for Mental
Health
1800 North Kent Street
Arlington, Virginia 22209

National Easter Seal Society for
Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60612

OCCUPATIONAL THERAPY ASSISTANT

DESCRIPTION OF WORK

The occupational therapy assistant works with and under the direction of the occupational therapist, and assists in administering the treatment program. They instruct patients in manual and creative arts and activities for daily living, prepare and lay out work materials and supplies, and assist in maintaining the supply of tools and equipment. The OT assistant reports to the occupational therapist regarding the progress of the patients and carries out possible changes in procedure for the rehabilitation of the patients.

EMPLOYMENT

Occupational therapy assistants assist the occupational therapist in a variety of settings such as hospitals and clinics, rehabilitation centers, psychiatric clinics, special schools, military hospitals, nursing homes, sheltered workshops, home care programs, housing projects, and community agencies and clinics.

EDUCATIONAL REQUIREMENTS

The occupational therapy assistant must complete either a two-year associate degree program or a one-year certificate program in an accredited vocational/technical institution.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Occupational Therapy Association
6000 Executive Boulevard
Suite 200
Rockville, Maryland 20852

Wisconsin Occupational Therapy Association
9 Leyton Circle
Madison, Wisconsin 53713

Department of Allied Medical Professions and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

PHYSICAL THERAPIST

DESCRIPTION OF WORK

The physical therapist works with patients who have been physically disabled by illness or injury or who are born with a handicap to restore bodily function and reach maximum performance and live within the limits of their disabilities. Upon a physician's referral, physical therapists evaluate the extent of disability and plan a treatment program designed to improve circulation, strengthen muscles, encourage the return of motion, and to train or retrain the patient to perform the activities necessary for daily functioning at a normal or near-normal level. Treatment may include exercise to improve muscle strength and coordination and the therapeutic properties of heat, cold, electricity, ultrasound waves, water and massage to relieve pain or to change the patient's condition. Physical therapists must also prepare the patient - both psychologically and emotionally - to accept treatment. New patients are frequently distraught, resentful, and burdened by feelings of hopelessness and helplessness. The physical therapist must find ways to eliminate these barriers and gain the confidence of the patient before effective treatment can begin.

EMPLOYMENT

Physical therapy practitioners work in hospitals, rehabilitation centers, clinics, schools, nursing homes, public health agencies, military and veteran's hospitals, and private practice.

EDUCATIONAL REQUIREMENTS

Three basic plans exist for the education of the physical therapist. The bachelor's degree program requires four years for completion and upon completion the graduate is awarded a B.S. or B.A. degree in physical therapy. The certificate program requires a bachelor's degree in a major other than physical therapy and is twelve to sixteen months in duration. Graduates of certificate programs are considered equally as qualified as graduates of bachelor's degree programs and there is no distinction in terms of adequacy of preparation, hiring practices or salary. The master's degree program requires a bachelor's degree for admission and usually lasts two years. Upon graduation, the recipient of a master's degree often finds employment in a teaching or supervisory position.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Physical Therapy Association
1156 15th Street, N.W.
Washington, D.C. 20005

Wisconsin Chapter of the American Physical
Therapy Association
1308 Dayton Street
Madison, Wisconsin 53706

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Department of Allied Professions and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60612

PHYSICAL THERAPY ASSISTANT

DESCRIPTION OF WORK

Physical therapy assistants perform routine treatment procedures as directed by the physical therapists and assist them with more complex procedures. They assist patients in dressing, undressing and moving about as well as getting into position for treatment. In addition, PT assistants set up and assemble such equipment as hydrotherapy tanks and vibrators, time the length of treatments, change linens on treatment tables and clean work areas.

EMPLOYMENT

Physical therapy assistants work with the physical therapist in hospitals, clinics, rehabilitation centers, schools, nursing homes, public health agencies, military and veteran's hospitals, pediatric clinics, and mental hospitals.

EDUCATIONAL REQUIREMENTS

The physical therapy assistant must obtain a two-year associate degree from an accredited institution. The P.T. assistant may resume their studies and become a professional physical therapist.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Physical Therapy Association
1156 15th Street, N.W.
Washington, D.C. 20005

Wisconsin Chapter of the American Physical Therapy Association
1308 Dayton Street
Madison, Wisconsin 53706

Department of Allied Professions and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60612

PSYCHOLOGIST

DESCRIPTION OF WORK

The mental health care team is diverse in its composition, but each component individual directs their efforts toward the goal of medical health for everyone. As distinguished from psychiatry - which is a branch of medicine - psychology is a non-medical science. However, it is a highly specialized science of human behavior. Psychologists probe deeply into the reactions of human beings to discover why they act as they do, and apply knowledge about human behavior to the prevention, diagnosis, and treatment of mental illness. The mental health field encompasses four types of psychologists; the clinical psychologist, the counseling psychologist, the social psychologist, and the psychometrist.

The clinical psychologist has direct patient contact while cooperating with the medical team in aiding the maladjusted or misfit person to understand their problem, to learn to cope with their disability, and to live satisfying lives.

The counseling psychologist deals primarily with the problems encountered by people in day-to-day living and facilitating their normal development. They help people discover their capabilities, interests and weaknesses so that they can make realistic and sensible decisions about their own problems.

The social psychologist is concerned with group dynamics, studying how social attitudes form and how different social factions react with each other.

The psychometrist specializes in administering tests. The test results are used to diagnose mental disorders and also to determine treatment procedures.

EMPLOYMENT

Psychologists are employed in colleges and universities, public and private schools, business and industry, government, clinics and hospitals, military and veteran's hospitals, rehabilitation centers, sheltered workshops, and private practice.

EDUCATIONAL REQUIREMENTS

A psychologist must be able to think of human beings objectively and view their problems scientifically and statistically. Their education should permit them to achieve this. Depending on the area of specialization, the educational requirements vary. A broad background of knowledge and skill in human relations should be part of the student's undergraduate college preparation, although psychology does not have to be the undergraduate major. A master's degree, the minimum requirement for a practicing psychologist, can be obtained in two years of graduate study. A doctoral degree (Ph.D.) requires an additional three to five years of study, depending on the area of specialization. A year of internship training is usually required of Ph.D's in psychology. The top rung after a Ph.D. is a Diplomate in Psychology awarded after five more years of experience and successful completion of an examination before the American Board of Examiners of Professional Psychology.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Psychological Association
1200 17th Street, N.W.
Washington, D.C. 20036

National Association for Social Workers
15th And H Streets
Washington, D.C. 20005

Wisconsin Association for Mental Health
P.O. Box 1486
Madison, Wisconsin 53703

The National Association for Mental Health
1800 North Kent Street
Arlington, Virginia 22209

RESPIRATORY THERAPIST/TECHNICIAN

DESCRIPTION OF WORK

Respiratory therapists/technicians, under medical supervision, are responsible for the treatment, management, control, diagnostic evaluation and care of patients with cardiopulmonary (heart-lung) deficiencies and abnormalities. Those in need of respiratory therapy may be adults who are victims of cardiac failure, asthma, emphysema, cerebral thrombosis, pneumonia, hemorrhage, and shock...or they may be premature babies, not yet able to breathe in a normal atmosphere. When a breathing emergency develops, respiratory therapists/technicians make therapeutic use of medical gases and administration apparatus, environmental control systems, humidification, aerosols, medications, ventilatory support, broncho-pulmonary drainage and exercises, respiratory rehabilitation, cardiopulmonary resuscitation, and maintenance of natural, artificial and mechanical airways to assure the patient an adequate supply of life-saving oxygen. They set up and operate various types of equipment such as oxygen masks, oxygen tents, nasal catheters, iron lungs, resuscitators, incubators and a variety of other sophisticated devices to regulate precisely the various gases and medicines to patients with breathing problems. Their duties also include the measurement of ventilatory volumes, pressure, flows, blood gas analysis and other related physiologic monitorings.

EMPLOYMENT

Hospitals are the most prevalent employers of respiratory therapists and technicians. The size of the inhalation therapy staff varies from hospital to hospital but the field is growing rapidly. The needs for qualified personnel are expanding with the new uses of inhalation therapy. Other places of employment are nursing care facilities, clinics, doctor's offices, companies providing emergency oxygen services, and municipal organizations.

EDUCATIONAL REQUIREMENTS

Educational training for respiratory therapists include two years of instruction in an accredited school, leading to an Associate Degree in respiratory therapy. Formal education programs are offered by some hospitals which offer a two year certificate program for respiratory therapists. Respiratory therapy technicians can receive on-the-job training in hospitals, or complete an educational program offered by a technical institution or hospital leading to certification as a qualified respiratory therapy technician.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Association for Respiratory Therapy
7411 Hines Place
Dallas, Texas 75235

Department of Allied Medical
Professions and Services
American Medical Association
535 Dearborn Street
Chicago, Illinois 60610

SPEECH PATHOLOGIST and AUDIOLOGIST

DESCRIPTION OF WORK

Speech pathologists and audiologists are specialists in communication disorders. They work with children and adults who have speech and hearing problems. They offer services in evaluation and diagnosis of speech, language and hearing disorders, providing remedial therapy and conducting information and progress conferences. The speech pathologist is concerned with the treatment and assessment of speech disabilities in children and adults. Stuttering and lisping are problems which the speech pathologist helps to overcome. Cleft palates require speech training as well as children who fail to learn to talk at the usual age and the speech pathologist works with these persons as well as those who are afflicted with other ailments such as cerebral palsy and impaired hearing. The audiologist helps children and adults primarily with the assessment and treatment of hearing problems such as those caused by certain otological or neurological disturbances. They provide clinical services, conduct research, and teach and administer public and private programs. Both specialists test patients, evaluate their problems, and plan therapy to restore as much normal speaking and hearing function as possible.

EMPLOYMENT

This career field is one in which men and women find equal employment opportunities. Speech pathologists and audiologists are employed in public and private schools, college and university outpatient clinics, hospital speech and hearing clinics, rehabilitation centers, government agencies, industry, research and private practice. A widening belief in the right of all citizens to adequate education and health care, increasing public recognition and understanding of communication problems, and expanded local, state, and federal support for clinical and research programs will assure continued professional development and employment opportunities for speech pathologists and audiologists.

EDUCATIONAL REQUIREMENTS

A four year bachelor's degree in speech pathology and/or audiology plus a master's degree in speech pathology and/or audiology is required in practically all job settings in speech pathology and audiology in Wisconsin. Pre-professional course work can be completed either in an exclusively undergraduate institution or in the same college or university in which graduate speech pathology and audiology work will be done. Certification is required by the American Speech and Hearing Association.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O.Box 4387
Madison, Wisconsin 53711

American Speech and Hearing Association
9030 Old Georgetown Road
Washington, D.C. 20014

National Association of Hearing and Speech Agencies
919 18th Street
Washington, D. C. 20006

Wisconsin Speech And Hearing Association
Career Information Chairman
8255 North Cedarburg Road
Milwaukee, Wisconsin 53209

American Health Care Association
1200 15th Street N.W.
Washington, D. C. 20005

National Association For Hearing And Speech Action
814 Thayer Avenue
Silver Spring, Maryland 20910

National Easter Seal Society For Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60612

LICENSED PRACTICAL NURSE

DESCRIPTION OF WORK

The licensed practical nurse works under the supervision of a registered nurse in giving nursing care to patients. As a member of the nursing team, an LPN provides skilled but uncomplicated bedside nursing care for ill, injured, convalescent, and handicapped persons. They take and record temperature, blood pressure, and pulse and respiration rates, dress wounds, give alcohol rubs and massages in addition to applying compresses, icebags, and hot water bottles. LPN's also administer specified medication, observe patients and report adverse reactions to doctors and registered nurses.

EMPLOYMENT

The licensed practical nurse is employed in hospitals, physicians' offices, nursing homes, institutions, sanitoriums, industry and clinics. They may also give practical nursing care to individual patients at private homes.

EDUCATION REQUIREMENTS

Students must train for one year at a private or vocational school of practical nursing. Some two year associate degree programs are available. A graduate of an accredited program must pass a state board examination for licensure as a licensed practical nurse (LPN).

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Wisconsin Association Of Licensed Practical Nurses
c/o Margaret Scholzen, Executive Director
4910-A Biscayne Avenue, Apt. #12
Racine, Wisconsin 53206

National Association For Practical Nurse Education And Service
122 East 42nd Street
New York, New York 10017

American Health Care Association
1200 15th Street, N.W.
Washington, D.C. 20005

National Federation of Licensed Practical Nurses
250 West 57th Street, Room 1511
New York, New York 10019

National League For Nursing
10 Columbus Circle
New York, New York 10019

NURSE ANESTHETIST

DESCRIPTION OF WORK

An essential member of the surgical team, the nurse anesthetist is a skilled and highly trained registered nurse specialist who administers anesthetics to patients during surgical operations, obstetric procedures, and special medical treatments. The nurse anesthetist must be totally familiar with drugs, their effects and their ability to relieve pain. They must know the properties of gases and be informed on a wide range of special techniques that will make surgery more effective, safe, and possible. Prior to surgery, the nurse anesthetist must examine the patient's medical history to determine the degree of surgical risk and the type of anesthesia and sedation to administer. In the operating room, the nurse anesthetist shares the surgeon's responsibilities for the patient's welfare. They must keep the patient insensible to pain, yet constantly monitor the patient to make sure that the blood pressure, pulse and respiration all remain within normal limits.

EMPLOYMENT

Over 12 million surgical operations are performed each year in the United States. Most of these operations require anesthesia and anesthesia requires administration by a registered nurse anesthetist. This specialty field is open to both men and women. They are employed in public, private and military hospitals as well as in the public health service agencies and veterans administration hospitals.

EDUCATIONAL REQUIREMENTS

In addition to their RN training at an accredited nursing school, the nurse anesthetist must complete a two year program in anesthesia at a hospital. The students must then pass a qualifying examination to be licensed as a Certified Registered Nurse Anesthetist(CRNA).

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O.Box 4387
Madison, Wisconsin 53711

American Association of Nurse Anesthetists
111 East Wacker Drive
Suite 929
Chicago, Illinois 60601

Association of Operating Room Nurses
10170 East Mississippi Avenue
Denver, Colorado 80321

NURSING ASSISTANT/ORDERLY

DESCRIPTION OF WORK

Nursing assistants and orderlies are a group of nursing personnel who are supportive to the professional nurse. They perform selected tasks in patient care which supplement the work of the professional staff to keep the hospital or health facility operating smoothly and efficiently.

The duties of a NURSING ASSISTANT vary from institution to institution. Working under the direction of professional nurses, they perform simple tasks involved in the personal care of individuals receiving nursing services. A nursing assistant may make beds, bathe patients, assist in feeding patients, deliver messages, escort patients to other departments, take temperatures, distribute and collect food trays, and perform other duties important to the patient's personal comfort and care.

The ORDERLY is a male nurses aide who performs tasks similar to the nursing assistant. His duties may vary from one institution to another, however, he usually performs tasks for male patients or he may be assigned to heavier work in the nursing unit, such as lifting patients or moving and setting up large pieces of equipment.

EMPLOYMENT

For a person considering a career in the health field and wishing to gain some experience in a health care facility, each of these positions offers this chance. Employment opportunities exist in hospitals, clinics, and nursing homes.

EDUCATIONAL REQUIREMENTS

On-the-job training offered by the health care facility in which employment is being sought is one method of securing the educational training needed. However, pre-service courses for these jobs are offered by many vocational-technical schools.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Heath Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Hospital Association
840 North Lake Shore Drive
Chicago, Illinois 60611

American Health Care Association
1200 15th Street, N.W.
Washington, D. C. 20005

REGISTERED NURSE

DESCRIPTION OF WORK

Registered nurses not only care for sick patients, but they promote the physical, mental, and social well-being of people in general. More specifically, the duties of the registered nurse vary depending on their education and experience. The registered nurse plans, directs, organizes, implements, and evaluates a plan of nursing care to meet the immediate and long range needs of one or more patients. They give nursing care and perform bedside nursing functions appropriate for their education and background in the bio-physical, behavioral and social sciences. They are leaders of the nursing team, coordinators of patient care, and share responsibility for patient care with other members of the health team. They teach, demonstrate, and interpret nursing care to patients, families and other members of the nursing team. They also provide public health services to people in the community as a whole.

EMPLOYMENT

America's rapidly expanding population, the longer life span of the individual person, the emphasis on health and preventative measures, the increase in chronic illness among aging people, and the attractive health insurance plans now offered to the public have shown it to be imperative that greater provision be made for nursing services. Today, nursing is a flexible, far-reaching professional field that allows one to serve others in a variety of settings including public and private hospitals, nursing homes, public health agencies, industry, primary and secondary schools, governmental agencies, doctors' offices, private homes, schools of nursing, or as a self-employed private duty nurse. A career in registered nursing offers men and women a high degree of job security and employment opportunities in almost any location.

EDUCATIONAL REQUIREMENTS

Registered nurses can train in three ways: a four year bachelor's degree program, a three year hospital diploma program, and a two year associate degree program.

The four year baccalaureate degree program at a university or college includes general and nursing education. Clinical practice in nursing care of patients in hospitals is offered after the first year. The graduate of an accredited baccalaureate degree program is eligible for examination for state licensure as a registered nurse and is ready to go on to graduate study in nursing.

The three year hospital diploma program at a university or college provides basic courses in the sciences. Nursing instruction and clinical practice in nursing care are provided at a cooperating hospital. The graduate of an accredited hospital diploma program is eligible for examination for state licensure as a registered nurse.

The two year associate degree program at a technical school or junior college includes general and nursing education. Clinical practice with patients at a cooperating hospital is included. The graduate of an accredited associate degree program is eligible for examination for state licensure as a registered nurse.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O.Box 4387
Madison, Wisconsin 53711

Wisconsin Nurses Association
161 West Wisconsin Avenue
Milwaukee, Wisconsin 53203

National League For Nursing
10 Columbus Circle
New York, New York 10019

American Association of Occupational Health Nurses
79 Madison Avenue
New York, New York 10016

American Nurses Association
2420 Pershing Road
Kansas City, Missouri 64108

National Male Nurse Association
2309 State Street
Saginaw, Michigan 48602

Wisconsin League For Nursing
Mr. Bob Lawrence
c/o Waukesha Memorial Hospital
Waukesha, Wisconsin 53186

OPERATING ROOM ASSISTANT (SURGICAL TECHNICIAN)

DESCRIPTION OF WORK

Operating room assistants perform a variety of tasks in assisting surgeons and surgical nurses before and during operations and in post-operative treatment of patients. Under the supervision and direction of the operating room supervisor, who is a registered nurse (RN), the operating room assistant sets up the operating room with surgical instruments and supplies, prepares patients for surgery, and is responsible for the cleanliness, safety, and efficiency of the operating room that leads to good patient care. During surgery, the role of the operating room assistant varies. They pass instruments to the surgeon and may be required to hold retractors and cut sutures. They also assist in the application of post-operative dressings on the patient, and assume responsibility for making the area ready for the next operation.

EMPLOYMENT

Operating room assistants are employed mainly in hospitals and employment opportunities will continue to expand as surgical methods become more complex and therefore require trained assistance personnel.

EDUCATIONAL REQUIREMENTS

One-year certificate programs in vocational/technical schools and on-the-job training programs in hospitals are the two kinds of educational programs that prepare a person to be an operating room assistant.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school or hospital of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Hospital Association
840 North Lake Shore Drive
Chicago, Illinois 60611

Association of Operating Room Nurses
The Denver Technological Center
8085 East Prentice Avenue
Englewood, Colorado 80120

Association of Operating Room Technicians
1100 West Littleton Boulevard
Littletown, Colorado 80120

Department of Allied Medical Professions and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

PHARMACIST

DESCRIPTION OF WORK

The progress made in the health sciences in recent years also encompasses the field of pharmacology, the science of drugs. Emphasis on the use and overuse of medication by many patients has led to an expanded role of the pharmacist in drug therapy and drug information. The pharmacist is basically a specialist in the science of drugs. They must understand their composition, chemical and physical properties, manufacture and uses, activity in the normal body as well as in the person who is ill, and must be familiar with tests for purity and strength. In addition to dispensing medication and health supplies, the pharmacist also serves the community as a prime source of information on health topics. More and more, prescribers rely on the pharmacist for information about various drugs, their availability and their activity, just as patients do when asking about non-prescription or prescription medications.

EMPLOYMENT

More than eighty-five percent of the licensed pharmacists practice in a community or hospital pharmacy and laboratory setting; others serve patients in neighborhood health centers, nursing homes, extended care facilities, and health care clinics. Still others do product testing, research, marketing, sales, administrative work, teach in pharmacy schools, work for pharmaceutical companies or government pharmacies, serve with pharmaceutical associations, and are self-employed.

EDUCATIONAL REQUIREMENTS

The student planning to study pharmacy must spend a minimum of five years on their professional education after high school. The Bachelor of Science in Pharmacy is awarded after five years, the first two of which may be taken in most liberal arts colleges studying pre-pharmacy. Graduate degrees (MS and Ph.D.) are offered in the pharmaceutical sciences at most schools. The Doctor of Pharmacy (Pharm.D.) is an advanced professional degree requiring a minimum of six years of college study. At least one year of practical experience, or internship, must be obtained as a requirement for licensure as a pharmacist.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Wisconsin Pharmaceutical Association
202 Price Place
Madison, Wisconsin 53705

American Association of Colleges of Pharmacy
Office of Student Affairs
4630 Montgomery Avenue
Suite 201
Bethesda, Maryland 20014

American Pharmaceutical Assoc.
2215 Constitution Avenue, N.W.
Washington, D.C. 20037

PODIATRIST

DESCRIPTION OF WORK

Podiatry is the medical and surgical specialty dealing with the human foot. A podiatrist diagnoses and treats a wide range of foot diseases, deformities, injuries and malfunctions. Treatment can be by medical, surgical, mechanical or physical means. They utilize diagnostic and therapeutic techniques, surgery, medicine and drug prescriptions, physical therapy, X-rays, blood tests and other measures. Since the feet often show the first signs of general disease conditions, the podiatrist can often detect early symptoms of such disorders as arthritis and diabetes. As a member of the health team, the podiatrist consults with other medical specialists concerning continuing treatment for patients.

EMPLOYMENT

The demand for the services of podiatrists is increasing. Podiatric care is included in Medicare programs, in the Medicaid programs of most states, and in other community health programs. The podiatrist can choose to practice at home or in a professional building. They serve on hospital and teaching staffs, in nursing homes, public health agencies, Veterans Administration hospitals, in industry, special clinics, and research. Podiatric services are in great demand, and the shortage of podiatrists has been identified as one of the most serious shortages in the health professions.

EDUCATIONAL REQUIREMENTS

There are five Colleges of Podiatric Medicine in the United States. The minimum admission requirement to a college of podiatric medicine is two to three years of pre-podiatry study. However, most applicants now have baccalaureate degrees. Through the college clinic or cooperating hospitals, students receive extensive clinical experience during their college education. The degree of Doctor of Podiatric Medicine (DPM) is awarded upon successful completion of the course of study.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Podiatry Association
20 Chevy Chase Circle, N.W.
Washington, D.C. 20015

Wisconsin Association of Podiatry
9122 West Center Street
Milwaukee, Wisconsin 53222

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BIOMEDICAL ENGINEER

DESCRIPTION OF WORK

The biomedical engineering field is concerned with the application of the theories and technology of the physical sciences and engineering to the solution of biological and medical problems. This application is aimed at the development of improved methods for the prevention, diagnosis, treatment and repair of accident and disease. The activities of the biomedical engineer can be grouped into four categories. First, the development of new instruments for use in medical and surgical care or in research. Second, the invention and perfection of devices to repair or compensate for parts of the human body that do not function properly or have been damaged. Third, the application of engineering methods and technology to the wide range of specialized requirements in the health services and research. And fourth, the utilization of engineering's precise methods and concepts in biomedical research. Noteworthy examples of the activities of biomedical engineers that have led to improvements in the treatment and diagnosis of disease include the use of narrow beams of ultrasonic energy as an alternative to X-rays for "non-invasively" measuring organs and systems within the body; heart-lung machines used during open heart surgery; kidney dialysis machines which cleanse the blood; synthetic cardiac pacemakers and electrocardiograph machines which monitor the action of the heart. Biomedical engineers must be knowledgeable about and concerned with the materials and fibers composing these mechanisms, since they must be compatible with body tissues and functions.

EMPLOYMENT

As biomedical engineering becomes more essential to life, employment opportunities will increase. Biomedical engineers currently are employed in hospitals, research foundations, universities, industry, and government laboratories as well as such exotic environments as outer space and under the sea. As technology advances, the biomedical engineer will be able to apply this growing knowledge toward improved health care techniques.

EDUCATIONAL REQUIREMENTS

The medical general practitioner has given way to the medical specialist, but the biomedical engineer must specialize in diversity. In the past, biomedical engineers were drawn from those trained in established engineering disciplines - electrical, mechanical, chemical, civil, etc. While some specialization in one area of biomedical engineering is needed, flexibility and adaptability are essential. The student interested in the field of biomedical engineering should include in their educational background some courses in biology, physiology, biochemistry and other bio-physical sciences are incorporated into the college curriculum. The individual looking toward a career in biomedical engineering must plan for at least four years of college education leading to a bachelor's degree in engineering. Biomedical engineering programs are in the initial stages of development at both the undergraduate and graduate levels. Graduate work at the Master's and Ph.D. level in biomedical engineering may be required of some positions.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Task Force on Educational Programs and Employment Opportunities
Biomedical Engineering Society
P.O. Box 2399
Culver City, California 90230

Bio-Instrumentation Advisory Council
American Institute of Biological Sciences
3900 Wisconsin Avenue, N.W.
Washington, D.C. 20016

Alliance for Engineering in Medicine and Biology
4405 East-West Highway
Suite 404
Bethesda, Maryland 20014

Biomedical Engineering and Instrumentation Branch
Division of Research Services
National Institutes of Health
9000 Wisconsin Avenue
Bethesda, Maryland 20014

BIOMEDICAL ELECTRONICS TECHNICIAN

DESCRIPTION OF WORK

The sophisticated medical instruments and machines which are rapidly becoming a fundamental part of modern health care and disease prevention demand great care and skill in operation. The answer to this demand has been the emergence of a new health career - the biomedical electronics technician (BMET). Working under the supervision of biomedical engineers, the technician installs, operates, repairs, maintains, and calibrates electronic equipment vital to the diagnosis and treatment of disease. They maintain inventories of all electronic biomedical instruments and machines in the health facility and occasionally consult with the hospital administrator in decisions to repair or buy new instrumentation. In addition, the BMET must be able to teach nurses, therapists, and other hospital staff how to operate these instruments and machines. In industry, technicians consult and/or assist the biomedical engineers in the construction of new machinery.

EMPLOYMENT

As biomedical engineering becomes more essential to life, employment opportunities for the BMET will increase. The demand for biomedical electronics technicians is greatest among instrument manufacturing firms, but positions are opening fast and are in demand in large hospitals, research institutes, and universities. As technology advances, the biomedical electronics technician will be needed to help apply this growing knowledge toward improved care.

EDUCATIONAL REQUIREMENTS

Most training programs for biomedical electronics technicians are two years in length leading to an associate degree in biomedical equipment technology, electronics or related engineering science. The training/education programs are designed to familiarize students with a wide variety of medical and electronic equipment and provide opportunities for "hands-on" experience in medical instrumentation in a realistic job setting.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Association For The Advancement of Medical Instrumentation
1650 Rockville Pike
Bethesda, Maryland 20014

Bio-Instrumentation Advisory Council
American Institute Of Biological Sciences
3900 Wisconsin Avenue, N.W.
Washingon, D.C. 20016

Task Force On Educational Programs and Employment Opportunities
Biomedical Engineering Society
P.O. Box 2399
Culver City, California 90230

Biomedical Engineering and Instrumentation Branch
Division Of Research Services
National Institute Of Health
9000 Wisconsin Avenue
Bethesda, Maryland 20014

Alliance For Engineering In Medicine and Biology
3900 Wisconsin Avenue, N.W.
Suite N300
Washington, D.C. 20016

Technical Education Research Center
44 Brattle Street
Cambridge, Maryland 02138

ANIMAL TECHNICIAN

DESCRIPTION OF WORK

The animal technician works with the veterinarian caring for and treating sick and injured animals. Under the supervision of a veterinarian, they perform routine laboratory and clinical procedures - obtaining and recording case information and assisting in diagnostic, medical and surgical procedures. They may feed animals, dress wounds, collect specimens, do simple laboratory tests, and keep records. They may also assist biological research workers or other scientists who work with animals.

EMPLOYMENT

Animal technicians are employed in animal laboratory and care facilities.

EDUCATIONAL REQUIREMENTS

Certification as an animal technician requires the completion of a two-year technical school program leading to a certificate or associate degree in animal technology. A summer internship between the first and second year gives the student practical experience in the field.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Veterinary Medical Association
930 North Meacham Road
Schaumburg, Illinois 60172

VETERINARIAN

DESCRIPTION OF WORK

Just as the field of human health is diverse and complex, so is the field of veterinary medicine. The veterinarian's work is three fold. First, the veterinarian works to prevent animal disease through vaccination and instructing owners in the management, care, and feeding of their animals. Secondly, the veterinarian works to diagnose and treat sick and injured animals and give them medical and surgical care. And, thirdly, veterinarians also contribute to human disease prevention because animals affect human lives in many ways (as sources of food and clothing, and in medical research on human disease). Animal research conducted by veterinarians has contributed significantly to advancements in human medical knowledge in the areas of surgery, internal medicine, cancer, tuberculosis, and several chronic diseases. The prevention of diseases transmitted to humans from animals (such as rabies, anthrax, tuberculosis, malaria, etc.) is a concern of veterinary public health officials. Through the inspection of meat, poultry products, and dairy products veterinarians are able to control and prevent the introduction and spread of disease. Rural veterinarians help to insure a safe and economical food supply by eliminating epidemics and disease. Other areas of professional activity that veterinarians engage in include teaching and research, military service, and zoo medicine.

EMPLOYMENT

Employment opportunities for veterinarians include the U.S. Department of Agriculture, private practice as a rural veterinarian or small animal veterinarian, teaching and research, animal hospitals and laboratories, zoos and military service.

EDUCATIONAL REQUIREMENTS

A minimum of six years must be spent in post-high school education to become a licensed veterinarian. At least two years of pre-professional study at a liberal arts college is required; however, a bachelor's degree is beneficial when applying for admission to an accredited college of veterinary medicine. Following four years of professional study in veterinary medicine, a Doctor of Veterinary Medicine degree is conferred. A license to practice may then be earned by successfully passing state board examinations. Graduate degrees in fields of specialization are available.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Veterinary Medicine Association
930 North Meacham Road
Schaumburg, Illinois 60172

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OPTICIAN

DESCRIPTION OF WORK

Dispensing opticians make and fit the eye glasses or lenses prescribed by opthamologists or optometrists. They interpret prescriptions in order to select the proper glasses, frame and shape of lenses for particular facial features. They also adjust and fit the frames to the customer. The laboratory optician does the actual grinding of the lenses according to the prescription. They polish, grind, finish, and mount the lenses into the assembling frame. They also test and inspect the product before they are delivered to the dispensing optician.

EMPLOYMENT

Opticians are employed by wholesale or large retail optical establishments and may eventually own their own dispensing and laboratory business dependent on ambition and business acumen.

EDUCATIONAL REQUIREMENTS

One-year certificate programs and two-year associate degree programs in opthalmic dispensing and laboratory technology are available. Individuals can also qualify for positions in these fields with 3-4 years of on-the-job training in an apprenticeship program. Additional training is necessary to grind and fit contact lenses.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

Guild of Prescription Opticians Of America
1250 Connecticut Avenue, Northwest
Washington, D.C. 20036

OPTOMETRIC ASSISTANT

DESCRIPTION OF WORK

The optometric assistant is an important member of the optometric team and an integral part of a modern, well-managed optometric office. The optometric assistant is responsible for efficient office management. Their office duties include scheduling appointments, telephone communication, fiscal bookkeeping, office billing, and record keeping. While they may also be responsible for office tasks, a sizeable portion of their time may be spent in the laboratory section of the optometric office. Among the responsibilities in this area are: verification of prescriptions, assembling of frames and alignment of eyewear, cosmetic frame styling, frame repair and maintenance and care of instrumentation and laboratory supplies. Of increasing importance in busy optometric practices are ancillary screening duties such as visual field evaluation. Also included in the duties of an optometric assistant may be patient instruction in the care, handling, insertion and removal of contact lenses. The optometric assistant may also administer corrective eye exercises or other treatments that do not require drugs or surgery.

EMPLOYMENT

Optometric assistants are employed in optometrists' offices in private practices, associate or group practices, hospitals, clinics, schools and health agencies.

EDUCATIONAL REQUIREMENTS

While formal training in optometric and office procedures is not a requirement for employment, graduates of formal training programs are in great demand. The most common programs are one-year certificate or diploma programs or two-year associate degree programs in paraoptometrics.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Optometric Association
7000 Chippewa Street
St. Louis, Missouri 63119

Wisconsin Optometric Association
5721 Odana Road
Madison, Wisconsin 53719

OPTOMETRIST

DESCRIPTION OF WORK

Optometrists specialize in the examination, diagnosis and treatment of the vision system to insure the efficiency of the eyes. They detect diseases, injuries, and other abnormalities of the eyes and refer the patient to an eye physician for treatment or surgery. When needed, optometrists prescribe corrective eye exercises, glasses, contact lenses or other optical aids to preserve or restore maximum vision.

EMPLOYMENT

The U.S. Department of Labor has identified the field of optometry as having a serious shortage of trained personnel. The high incidence of uncorrected visual problems along with population growth, increasing numbers of elderly people and white collar workers, awareness of the need for vision care, and general acceptance of eyeglasses and contact lenses have created a strong demand for optometric services. The optometrist may choose from several alternatives for his/her professional career. They may enter private practice, associate or group practice, serve in hospitals, clinics, schools and health agencies. Teaching in schools of optometry and doing research in universities or with optical manufacturers are other opportunities.

EDUCATIONAL REQUIREMENTS

Optometry education includes at least six years of post high school study, including two years of pre-optometry courses at an accredited college or university. Four years in an optometric college result in a Doctor of Optometry degree. A Master's or Ph.D. degree in physiological optics or a related field is usually required for teaching and research. Graduates of schools approved by the Council of Optometric Education must successfully complete a state board examination to obtain a license to practice.

WHERE TO WRITE FOR FURTHER INFORMATION

Write to the school of your choice.

Health Careers Program
P.O. Box 4387
Madison, Wisconsin 53711

American Optometric Association
7000 Chippewa Street
St. Louis, Missouri 63119

Wisconsin Optometric Association
5721 Odana Road
Madison, Wisconsin 53719

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HEALTH CAREER PROGRAM OUTLINES

CLINICAL LABORATORY and TECHNICAL SERVICES

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CERTIFIED LABORATORY ASSISTANT

The following course outline is representative of an educational program at any teaching hospital in the state of Wisconsin. Students are advised to consult the bulletins of the hospital of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE INFORMATION

On the job training will take 12 months in a teaching hospital in the state of Wisconsin.

The following is a list of high school courses that are recommended to prepare fully for the CERTIFIED LABORATORY ASSISTANT program at any teaching hospital in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Biology

Advanced Biology

Chemistry

Advanced Algebra

CYTOTECHNOLOGIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE INFORMATION

Minimum prerequisites for admission are two years (60 semester hours, or 90 quarter hours) of academic education in an accredited college or university. This preparatory work must include a minimum of 14 semester hours or 21 quarter hours of biology. These may include courses in general biology, bacteriology, parasitology, physiology, anatomy, histology, genetics, embryology, and zoology.

In the first six months of didactic training, the 40-hour week consists of lectures, discussions, laboratory procedures, quizzes, films, demonstrations, and 26 hours of microscopy. Lectures and discussions generally include anatomy, histology, endocrinology, physiology and pathology as well as cytology. One week of formal examinations, both written and practical, are given at the completion of this phase of training.

The second six months is devoted to supervised microscopy, during which the student further develops his skills and diagnostic acumen. Students also rotate through outside laboratories related to the cytology program. Included in the second semester curriculum are two 3-week units in Hematology and Cytogenetics.

The following is a list of high school courses that are recommended to prepare fully for the CYTOTECHNOLOGIST program at any college or university in Wisconsin. See Appendix I for the course descriptions.

- Biology
- Advanced Biology
- Chemistry
- English Language Arts
- Developmental Writing
- Writing Seminar

ELECTROCARDIOGRAPH (EKG) TECHNICIAN

The following course outline is representative of an educational program at any teaching hospital in the state of Wisconsin. Students are advised to consult the bulletins of the hospital of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE INFORMATION

On the job training will take several weeks in a teaching hospital in the state of Wisconsin.

ELECTRONENCEPHALOGRAPH (EEG) TECHNICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

FIRST YEAR	CREDIT
5-13-112 Anatomy and Physiology 112	4
5-13-122 Anatomy and Physiology 122	4
6-05-101 Fundamentals of Electricity & Electronics 101	3
5-25-110 Introduction to EEG Science 110	5
5-25-121 EEG Science 121	8
5-25-132 EEG Science 132	7
5-25-143 EEG Science 143	11
5-10-131 Related Mental and Physical Conditions 131	5
5-13-125 Neuroanoatomy and Physiology 125	3
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GENERAL EDUCATION REQUIREMENTS

FIRST YEAR	
8-04-104 Fundamentals of Mathematics 104	3
8-09-140 Introduction to Psychology 140	5
8-01-140 Written Communications 140	3
	11

ELECTIVES	
Electives	6

SECOND YEAR	
1-02-124 Office Mangement 124	3
1-07-109 Data Processing Concepts 109	3
5-25-154 EEG Science 154	5
5-25-165 EEG Science 165	4
5-25-167 EEG Science 167	2
	17
8-01-145 Oral Communications 145	3
8-01-155 Technical Report Writing 155	3
8-09-167 Introduction to Sociology 167	5
Elective (Behavioral or Social Science)	3
Elective (Communications Skills or Speech)	3
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ELECTROCENCEPHALOGRAPH (EEG) TECHNICIAN

COURSE DESCRIPTIONS

5-13-112 Anatomy and Physiology 112

An integrated unit covering the structure and function of the human body. Emphasis is placed on the physiological functions of the body.

Credit: 4

5-13-122 Anatomy and Physiology 122

Continuation of Anatomy and Physiology 112. Prerequisite: 5-13-112.

Credit: 4

6-05-101 Fundamentals of Electricity and Electronics 101

The basic fundamentals of electricity and electronics for technical students in fields other than electronics technology. Sources of electricity, magnetism, resistance, inductance, capacitance, tranformers and diodes are studied. Use of volgage current, power meters and the oscilloscope are involved in laboratory work.

Credit: 3

5-25-110 Introduction to EEG Science 110

Designed to introduce the student to the field of EEG technology and its use in medicine and surgery. Ethics and vocational opportunities will be integrated. Technical principles in actual operation of laboratory will be introduced in the classroom and applied in the laboratory.

Credit: 5

5-25-121 EEG Science 121

Continuation of Introduction to EEG Science 110. Emphasis will be placed on history taking, obtaining tracings, and careful handling of patients. Classroom and clinical laboratroy experience will correlate EEG findings in health and diseases. Prerequisites: 5-25-110 and 5-13-112.

Credit: 8

5-25-132 EEG Science 132

An extension of EEG Science 121, and is designed to broaden and deepen knowledge of EEG findings in health and disease. Student will have opportunity to exercise initiative and ability in operating the apparatus. Emphasis on interpretation of the EEG will be strengthened. Prerequisites: 5-25-121, 5-13-122, and 6-05-101.

Credit: 7

5-25-143 EEG Science 143

Further develops materials in EEG Science 132 and is designed to stress essentilas of electroencephalography in diagnosis of disease. Introduction of other electro-diagnostic techniques will be included. Student will have opportunity to operate and to maintain apparatus with minimum supervision. Prerequisite: 5-25-132 and 5-13-125.

Credit: 11

5-10-131 Related Mental and Physical Conditions 131

Designed to give the student an understanding of the medical, surgical, neurological and pshchiatric disorders as it relates to electroencephalography. Prerequisite: 5-25-121.

Credit: 5

5-13-125 Neuroanatomy and Physiology 125

Designed to emphasize the aspects of neuroanatomy, neurophysiology, neurochemistry, and neuropharmacology which are essential for the EEG technician's knowledge. Laboratory included. Prerequisite: 5-13-122.

Credit: 3

8-04-104 Fundamentals of Mathematics 104

Review of arithmatic operations and introductionto basic concepts of algebra. Covers properties of real number system, fractions and decimals, ratio and proportion, percentage, basic algebraic operations, operations with dimensions equations and formulas, and principles of problem solving. Emphasis placed on applications.

Credit: 3

8-09-140 Psychology 140

A general psychology course which surveys the principles of behavior. Emphasis is placed on the study and theory of human development, personality, learning and thinking, perception, psychological testing, mental health, therapy and social behavior.

Credit: 5

8-01-140 Written Communications 140

An understanding of composition in written communication. Emphasis is placed on the rhetoric and structural values of sentences, paragraphs, and themes.

Credit: 3

1-02-124 Office Management 124

Principles of management and personnel management emphasizing application to the office manager. An awareness of the need for control, cost reduction and human relations is interwoven throughout the course.

Credit: 5

5-25-154 EEG Science 154

Designed to aid the student in expanding his depth problem-solving techniques in recording and interpreting EEG tracings and in other EEG techniques. Included is an introduction to selected EEG research techniques, special procedures, and EEG laboratory managment. Prerequisite: 5-25-143

Credit: 5

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5-25-165 EEG Seminar 165

Continuation of EEG Science 154, with additional experience in EEG operation. Management of EEG departments will be emphasized. Student will also assist in the supervision of the EEG department. Prerequisite: 5-25-154.

Credit: 4

5-25-167 EEG Seminar 167

Technical and research reports will be presented by guest lecturers and students. Prerequisite: 5-25-154.

Credit: 2

8-01-145 Oral Communications

Applied basic principles of speech to improve the listening and speaking skills of a student as a conversationalist and formal speaker. Training is also given in participation in discussions and interviews.

Credit: 3

8-01-155 Technical Reporting 155

Designed to teach the technical student to communicate with proficiency in both oral and written reports. It offers the student an opportunity to use his oral and written skills in giving an oral progress report and oral defense of his written project. Prerequisite: Written Communications 140

Credit: 3

8-09-167 Introduction to Sociology 167

Developing beginning knowledge of basic sociological concepts related to culture, personality, institutions, and social change. Such topics as cultural uniformity and variability, socialization, ethnocentrism, social conflict, stratification, race relations and urbanization are surveyed.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the ELECTROENCEPHALOGRAPH (EEG) TECHNICIAN program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

Biology

English Language Arts

Developmental Writing

Writing Seminar

Sociology

Psychology

Electrical Principles

Algebra

Computer Lit

HISTOLOGIC TECHNICIAN

The following course outline is representative of an educational program at any teaching hospital in the state of Wisconsin. Students are advised to consult the bulletins of the hospital of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE INFORMATION

On the job training will take 12 months in a teaching hospital in the state of Wisconsin.

The following is a list of high school courses that are recommended to prepare fully for the HISTOLOGIC TECHNICIAN program at any teaching hospital in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Biology

Advanced Biology

Chemistry

Advanced Algebra

MEDICAL LABORATORY TECHNICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester	Credits
MLabT 103 Basic Clinical Laboratory Procedures 1	4
Math 151 Technical Mathematics 1	4
NatSci 103 Anatomy and Physiology	5
NatSci 111 Chemistry 1	5
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Second Semester	
MLabT 104 Basic Clinical Laboratory Procedures 2	5
Eng 151 Communication Skills 1	3
NatSci 109 Microbiology	4
NatSci 112 Chemistry 2	5
PhyEd 101 Physical Education	1
	18

Second Year First Semester	
MLabT 105 Basic Clinical Laboratory Procedures 3	7
MLabT 111 Clinical Practicum 1	4
Eng 152 Communication Skills 2	3
SocSci 151 Psycholoby of Human Relations	3
	17

Second Semester	
MLabT 108 Advanced Clinical Laboratory Techniques	7
MLabT 112 Clinical Practicum 2	4
SocSci 110 Basic Economics	3
SocSci 153 American Institutions	3
	17

MEDICAL LABORATORY TECHNICIAN

COURSE DESCRIPTIONS

103 Basic Clinical Laboratory Procedures 1

A course introducing the student to the clinical laboratory. Instruction includes the following topics: the role of the laboratory worker; specimen collection; preparation of solutions; urinology; and basic hematological procedures. The student is given selected learning experiences in the laboratory and clinical facilities under the direct supervision of qualified instructors. Successful completion satisfies the orientation requirement.

Credit: 4

151 Technical Mathematics 1

The student masters the basic mathematics topics needed by technicians. Technical Mathematics 1 includes these topics: signed numbers, operations with fractions, non-fractional and fractional equations, graphing, formula rearrangement, systems of two equations, formula derivation, number system, powers of ten, estimation, slide rule, calculations, ratio and proportion, percent, and common logarithms. Prerequisite: One year of high school algebra.

Credit: 4

103 Anatomy and Physiology

A general course which presents the normal structural and functional activities of the human body. Each system of the body is structurally and functionally discussed. Structural anomalies and functional dysfunctions are discussed briefly. Laboratory studies of the systems are aided by the use of models and skeletons, and by student dissections of cats and other animal specimens. Prerequisite: One year of either high school biology or high school general science.

Credit: 5

111 Chemistry 1

A study of chemical nomenclature, chemical mathematics, and the modern fundamental principals and basic facts of chemistry. A primary aim is to correlate facts about chemical reactions with atomic and nuclear structure and with the nature of chemical bonds. Prerequisite: One year of high school algebra and either one year of high school chemistry or NatSci 110.

Credit: 5

104 Basic Clinical Laboratory Procedures 2

Lectures and demonstrations are supplemented by laboratory practice and clinical experience. The student becomes familiar with techniques introduced in Basic Clinical Laboratory Procedures 1. The student is further introduced to new techniques which include: coagulation, hematological procedures, and miscellaneous fluid analysis. The student is under the direct supervision of qualified instructors in lecture, laboratory, and clinical affiliations. Prerequisites: MLabT 103, NatSci 103 and NatSci 109(or concurrent registration in NatSci 109).

Credit: 5

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

109 Microbiology

Basic facts of microbiology are presented, and a general understanding is gained of various laboratory methods used to study microorganisms. Emphasis is placed on the effect of organisms on the body, immunology, and the control of microorganisms. Prerequisite: One year of biology.

Credit: 4

112 Chemistry 2

Lecture topics include ionization and solubility. A survey is made of electrochemistry, nuclear chemistry, and organic chemistry. The remainder of the course is a discussion of the properties of the elements. The laboratory work deals with the above lecture topics with much time spent on qualitative analysis of the elements. Prerequisite: NatSci 111.

Credit: 5

101 Physical Education

This coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities,sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. The student furnishes his own personal equipment.

Credit: 1

105 Basic Clinical Laboratory Procedures 3

The student becomes familiar with basic principles and fundamental skills used in clinical chemistry and bacteriology. Through lecture, demonstration, and laboratory experience the student develops his ability to perform these basic procedures. Prerequisites: MLabT 104, Math 151, and NatSci 109 and 112.

Credit: 7

111 Clinical Practicum 1

The student observes and performs techniques in clinical chemistry and bacteriology in the affiliating clinical laboratory. This course provides practical applications of principles being presented concurrently in Basic Clinical Laboratory Procedures 3. Prerequisite: Concurrent registration in MLab T 105.

Credit: 4

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

108 Advanced Clinical Laboratory Techniques

This course is designed to provide theory and laboratory experiences in serology and immunohematology, and continuing experiences in clinical chemistry. Prerequisites: MLabT 105 and 111.

Credit: 7

112 Clinical Practicum 2

The student observes and performs techniques in clinical chemistry, immunohematology, and serology in the affiliating clinical laboratory. This course provides practical applications of principles being presented concurrently in Advanced Clinical Laboratory Techniques. Prerequisites: MLabT 111 and concurrent registration in MLabT 108.

Credit: 4

110 Basic Econmics

A genral introduction to majore institutions and principles which underlie our contemporary American economic system. The course is designed both to serve the general student and as an introduction to SocSci 111 and 112. Topics considered are: the nature of economics and economic systems, demand and supply, the measurement of economic performance, government in a free enterprise system, problems regarding business and labor organizations, and economic growth and development.

Credit: 3

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology and government. Subject matter is flexible and may be altered as societal change makes it necessary.

Credit: 5

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL LABORATORY TECHNICIAN program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

- Advanced Algebra
- Biology
- Chemistry
- Advanced Biology
- Advanced Chemistry
- Psychology
- Economics
- Developmental Writing
- Writing Seminar
- English Language Arts

MEDICAL TECHNOLOGIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

FIRST YEAR

First Semester	credits
Chemistry 102	5
English 101	3
Mathematics 112	3
Electives	4
	15

Second Semester	
Chemistry 104	5
Zoology 101	5
Medical Technology 101	2
Electives	3
	15

SECOND YEAR

First Semester	
Chemistry 341	3
Chemistry 342	2
Zoology 204	4
Electives	6
	15

Second Semester	
Zoology 350	3
Chemistry 221 OR Biochemistry 501	3-4
Physics 110	3
Electives	5-6
	15-16

THIRD YEAR

First Semester	
Microbiology 401	2
Medical Technology 320	4
Microbiology 402	2
Botany 540	3
Electives	4
	15

Second Semester	credits
Medical Technology 330	3
Microbiology 303	4
Health Sciences 450	3
Electives	5
	15

The fourth year of the program consists of didactic lectures given on campus and practical work in one of the participating hospitals: Columbia, Family, Lutheran, Children's, Mount Sinai, Saint Luke's, Trinity and Veterans Administartion, all in the Milwaukee area. These hospitals are approved by the Council on Medical Education of the American Medical Association for the training of medical technologists. The formal didactic lectures occupy two afternoons a week during the academic year. Successful completion of the clinical year, including three months of work during the summer, satisfies the requirements for admission to the examination given by the board of Registry of Medical Technologists(American Society of Clinical Pathologists).

MEDICAL TECHNOLOGIST

COURSE DESCRIPTIONS

102 General Chemistry

Introductory college chemistry. Modern fundamental principals of chemistry, with emphasis on the chemistry of the nonmetals. 2 hrs lect, 3 hrs lab, 2 hrs lab, 2 hrs disc. Not open for credit to students who have had Chem 111 or 117. Prereq: Chem 100 or 1 yr of high school algebra, 1 yr of high school chemistry, and suitable score on chemistry placement test.

Credit: 5

101 Freshman English

A course designed to improve the student's skill in reading and writing English. Required of all freshman except those who qualify for exemption. Prereq: none.

Credit: 3

112 College Algebra

Real number system:coordinate geometry; linear, quadratic, exponential, logarithmic, and polynomial functions; inequalities; systems of equations; determinants and matrices; mathematical induction; binomial theorem; progressions; permutations, combinations, and probability. Does not carry degree credit for Engr and Applied Sci students or for students with a placement score of 3. Prereq: Math 100 or placement score of 2.

Credit: 3

104 GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS

Continuation of Chem 102. 2 hrs. lect. 3 hrs. lab, 2 hrs. disc. Not open for credit to students who have had Chem 111 or 118. Prereq: Chem 102 or 117.

Credit: 5

101 ANIMAL BIOLOGY

Structure and function of the higher vertebrates and introduction to major areas of biological study. 3 hrs lect., 4 hres lab-disc. Students will pay expenses for any field trip. Prereq. None

Credit: 5

101 INTRODUCTION TO MEDICAL TECHNOLOGY

Lecture, discussion, and laboratory instruction to orient the student to the profession of medical technology. Includes field observation in the community hospitals. 8-week course. Prereq: fr or soph standing only.

Credit: 2

341 INTRODUCTION SURVEY OF ORGANIC CHEMISTRY

Intended for students who expect to take only one semester of organic chemistry. Not open for credit to students who have had Chem 104, 111 or 118. Con reg in Chem 342 recommended.

Credit: 3

342 INTRODUCTORY ORGANIC CHEMISTRY LABORATORY

6 Hrs. Lab. Prereq: Chem 341 or con reg.

Credit: 3

204 ANATOMY AND PHYSIOLOGY

Structure of the human body and physiology of the organ systems. Required of students in the School of Nursing and in the medical technology program. Not open for credit to students who have had Zool 170. 3 hrs lect, 3 hrs lab. Prereq: 1 semester general chemistry and 1 semester biology or zoology.

Credit: 4

350 ANIMAL PARASITES OF MAN

Morphology, life history, diagnosis and control of the important animal parasites affecting man. For medical technology students and other interested in public health problems. May not be combined for credit with Zool 355. 2 hrs lect. 4 hrs lab. Prereq: Zool 101 and 1 yr of college chem.

Credit: 3

221 ELEMENTARY QUANITATIVE ANALYSIS

For all students except the groups listed under Chem 223. 2 hrs lect, 6 hrs lab. Not open for credit to students who have had Chem 223. Prereq: Chem 104, 111, 118

Credit: 4

110 PHYSICS FOR THE HEALTH PROFESSIONS

An introductory course without laboratory for students in health-related pre-professional programs. Topics including mechanics, fluids, heat, sound, electricity, magnetism, electrical devices, optics and radioactivity. Not open to students who have had Physics 120, 207 or 209. Prereq: high school general science and algebra.

Credit: 3

401 IMMUNOLOGY

Fundamentals of the immuno response in man, including cellular, physiological and biochemical aspects. Prereq: junior standing, a year of Zoology and a year of chemistry.

Credit: 2

320 ELEMENTARY HEMATOLOGY

Lectures and laboratory instruction in the pathophysiology of hematopiesis, introduction to coagulation theory, and hematologic procedures. Required of all juniors in the medical technician Program. Prereq: Chem 341 and Zool 204 or con reg.

Credit: 4

402 IMMUNOLOGY LABORATORY

Laboratory experiences in basic immunological techniques. Prereq: junior standing and Microbiology 401 or con reg.

Credit: 2

540 BIONUCLEONICS

Lectures and demonstrations covering the physical principles, measurements, and interaction of ionizing radiation with matter from chemical to biological systems. 3 hrs lect. Prereq: junior standing and introductry courses in Botnay, Zoology and Chemistry.

Credit: 3

330 CLINICAL LABORATORY INSTRUMENTATION

Instruction in the principles and use of instruments commonly used in the hospital laboratory. Prereq: Junior standing medical technician program or cons program chpn.

Credit: 3

303 GENERAL MICROBIOLOGY

Study of the nature and properties of microorganisms. Molecular biology and genetics of bacteria and viruses. Surveys major groups ecological relationships, microbial evolution and taxonomy. Prereq: Chemistry 341 or 343.

Credit: 4

450 SURVEY OF DISEASE STATES

Elementary survey of the pathologic physiology involved in human disease. Prereq: Junior standing and Zoology 204 or Zoology 400 and 402.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL TECHNOLOGIST program at any college or university in Wisconsin. See Appendix I for the course descriptions.

- Biology
- Chemistry
- Advanced Biology
- Advanced Chemistry
- Advanced Algebra
- Psychology
- Sociology
- Developmental Writing
- Writing Seminar

NUCLEAR MEDICINE TECHNOLOGIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Basic Studies			min. 45 credits
Special Core Requirements: Nucl.Med.Tech			
Literature: Select any two of the courses below			6
Engl	201-202	American Literature	
Engl	203-204	Survey of English Literature	
Engl	205-206	World Literature	
Engl	210	The Literature of Black America	
Engl	215	Afro-American Authors	
Arts:		Select any two of the courses listed below	4
Art	102	Art Appreciation	
Musi	105	Music Appreciation	
SpTh	111	Theatre Appreciation	
P E	104	Dance Appreciation	
Phys	201	General Psychology	3
Phys	110	Introductory Physics or	
Phys	103-104	Elementary Physics I and II	5-8
Biol	100	Principles of Biology	4
Biol	205-206	Human Anatomy-Physiology I and II	6
Biol	231	Bacteriology	4
Biol	361	Immunology	4
Chem	101-104	General Chemsitry I and II	8
Chem	301	Quantitative Analysis	4
Chem	300	Foundations of Organic Chemistry or	4
Chem	303-305	Organic Chemistry Theory and Lab	5
Math	111	Algebra or	
Math	122	College Algebra and Trigonometry (or a higher numbered Mathematics course excluding Math 200-205)	4-5
Biol	331	Radiation Biology	3
Chem	361	Radiochemistry or	3
Chem	461	Nuclear Chemsitry	4
Math	205	Elementary Statistics	4
Phys	376	Nuclear Radiation Instruments, Measurement and Safety	2

Courses	Credit
I. English(two semesters)	
A. Engl 110 College English I	3
B. Engl 301 Advanced Composition	3
or	
Engl 303 College English II	3
or	
Engl 305 Creative Writing	3
Exemptions from 1B	
1. Students who qualify with a grade of "B" or better in English 110.	
2. Students who pass the Advanced Placement Examination and receive credit for English 110 (See course descriptions for 301,303, and 305. Engl 301 and 305 are intended primarily for English majors and minors.)	
II. Speech(one semester)	
SpTh 101 Principles of Effective Speaking	2
III. Science-Mathematics (three semesters)	
Not more than two semesters may be taken in the same department. At least one semester of laboratory science must be included (Departments A through D) Departments are designated A through F	12
A. Biology	
Biol 100 Principles of Biology	4
This is an introductory course. Students wishing to take a second semester of biology to meet requirements in Basic Studies may choose from:	
Biol 201 Human Biology (Not applicable to a major or minor)	4
Biol 204 Plant Biology	4
Biol 211 Vertebrate Zoology	4
Biol 212 Invertebrate Zoology	4
B. Chemistry	
Chem 100 Contemp. Chemistry or 101-104 or 103-104 General Chem	4-4

Courses	Credit
C. Geography/Earth Science	
Geog 121 Weather and Climate	4
Geog 122 Maps and Landforms	4
(Geog/Earth Sci 122 may precede 121)	
D. Physics	
Phys 103-104 Elementary Physics I and II	
(Phys 104 may precede 103)	
or	
Phys 201-202 General Physics Theory I and II	4-4
(Phys 201 requires background in claculus or concurrent registration in May 207)	
Phys 155-156 Descriptive Astronomy I and II	4-4
E. Mathematics	
Math 107 Contemporary Mathematics	4
Math 205 Elementary Statistics	4
(Math 111 or 2 semesters of high school mathematics required for admission to Math 205). Qualified students desiring to take other or more advanced courses in mathematics may fulfill requirements in Basic Studies by taking courses numbered higher than the above(excluding Math 200).	
F. Computer Science	
CptS 110 Introd to Computer Science	4
IV. History-Social Science(four semesters)	12
The four semesters required must include two semesters of history (Group A and two semesters of social science (Group B).	
A. History(two semesters in the same course)	
Hist 101-102 World Civilization	3-3
Hist 201-202 U.S. History I and II	3-3
B. Social Science(two semesters)	
Anth 100 Introd. to Anthropology	3
Econ 180 Principles of Economics I	3
MCm 201 Introducation to Mass Communication	3
PolS 101 American National Government	3
Soci 100 Introductory Sociology	3
Econ 190 Principles of Economics II	3
PolS 102 State and Local Government	3
Psyc 201 General Psychology	3
Soci 220 Social Problems	3

Courses	Credit
V. Humanities(4 semesters)	9-14
The required four semesters must be taken at least three departments and must include at least one semester of literature. Departments are designated A through G.	
A. Art 102 Art Appreciation	2
B. Musi 105 Music Appreciation	2
C. PE 104 Dance Appreciation	2
D. SpTh 111 Theatre Appreciation	2
E. Engl 201-202 American Literature I and II	3-3
Engl 203-204 English Literature I and II	3-3
Engl 205-206 World Literature I and II	3-3
Engl 201 Literature of Black America	3
Engl 215 Afro-American Authrs	3
Freshamn English is a prerequisite for all literature courses, which normally are taken in the sophomore year.	
Literature courses in foreign language are acceptable in this Basic Studies group.	
F. Phil 100 Introducation to Philosophy	3
G. Foreign Language(one department)	4-4
101-102 Elementary French, German or Spanish (4 cr. per semester) or	
201-202 Intermediate French, German or Spanish (4 cr. per semester)	
VI. Physical Activities(two semesters)	2
PE 100 Physical Activities	1-1
VII. Exploration(one semester)	2-5
A. JSED 100 Contempoary American Education	3
B. HED 101 Personal Health	2
C. Any course included in Categories I, III, IV and V when such selection constitutes an additional course of 2-5 credits beyond the minimum requirement of those categories.	

NUCLEAR MEDICINE TECHNOLOGIST

COURSE DESCRIPTIONS

201 American Literature I

Survey from colonial times to the Civil War. Prerequisite: Engl 110

Credit: 3

202 American Literature II

Survey from the Civil War into the twentieth century. Prerequisite: Engl 110.

Credit: 3

203 Survey of English Literature I

From Beowulf into the 18th Century, with attention to social, historical, and continental literary background. Prerequisite: Engl 110

Credit: 3

104 Survey of English Literature II

From 18th Century to the present with attention to social, historical, and continental literary background. Prerequisite: Engl 110

Credit: 3

205 World Literature I

A survey of western literature from Biblical times to the Renaissance, distinguishing major trends and their interrelationships. Prerequisite: Engl 110.

Credit: 3

206 World Literature II

A survey of western literature from the Renaissance to the present, distinguishing major trends and their interrelationships. Prerequisite: Engl 110.

Credit: 3

210 The Literature of Black America

Survey of Black American prose and poetry with emphasis on the twentieth century. Prerequisite: Engl 110.

Credit: 3

215 Afro-American Authors

An intensive study of principal Afro-American authors involving their relationship to the general field of American literature and their unique contributions as representatives of Afro-American culture. Prerequisite: Engl 110.

Credit: 3

105

102 Art Appreciation

Understanding and appreciation of painting, sculpture, and architecture. Basic components of a work of art and some general concepts of the history of art. Integration of experimental and exploratory studio experience.
Credit: 2

105 Music Appreciation

Elements of musical understanding. Emphasis in listening to music of all periods of music history.
Credit: 2

111 Theatre Appreciation

A study of theatre as an art form. Emphasis on the role of the audience and their understanding and appreciation of the elements of a theatrical production.
Credit: 2

104 Dance Appreciation

Folk, national dancing, and modern dance as communicative art. Contributions of dance to the cultural needs of society. Lecture, discussion, and participation in dance forms.
Credit: 2

201 General Psychology

A general survey of the principles of behavior and contemporary psychology. Topics include human development, personality, learning and thinking, perception, testing, mental health, biological and social aspects of behavior.
Credit: 3

110 Introductory Physics

An introductory study of the nature and behavior of matter and energy. Descriptions of matter, motion, waves, light, electricity and electronics, nuclear structure, and radiations. Measuring techniques and popularly used instruments will be examined in each area of study. Prerequisite: High school algebra.
Credit: 5

103 Elementary Physics I

Mechanics, properties of matter. Physical measurement, classical study of force, torque, dynamics, energy, machines, fluids, gases, liquids, solids, thermodynamics. Applciations from allied health and engineering fields. Prerequisite: Ability to solve simple algebraic equations.
Credit: 4

104 Elementary Physics II

Wave phenomena, electricity and magnetism, modern physics. Study of waves, sound, light, optics, electricity, atoms and nuclei. Applications from allied health and engineering fields. Prerequisite: Physics 103 recommended and ability to solve simple algebraic equations.

Credit: 4

100 Principles of Biology

A foundation course dealing with the living system primarily at the cellular level. Chemical composition, structure, metabolism, reproduction, inheritance, ecology, and evolution are stressed.

Credit: 4

205 Human Anatomy-Physiology I

A study of the anatomy and physiology of human organ systems. Covers body fluids, special sense organs, and the muscular, nervous, skeletal, and integumentary systems. (Recommended for pre-nursing and medical technology students.) Prerequisite: Biol 100 or concurrent registration.

Credit: 3

206 Human Anatomy-Physiology II

Covers the circulatory, respiratory, digestive, urinary, reproductive, and endocrine systems. (Recommended for pre-nursing and medical technology students.) Prerequisite: Biol 100 or concurrent registration.

Credit: 3

231 Bacteriology

General consideration of bacterial morphology, physiology, taxonomy, growth, and control mechanisms. Relationships of microorganisms to disease, fermentations, water and sewage, food spoilage and soil fertility. Prerequisite: Biol 100 or concurrent registration.

Credit: 4

361/ Immunology
561

In depth consideration of the nature of the immune response, antigenantibody reactions, blood group antigens, transplantation immunity, and hypersensitivity. Prerequisite: Biol 231.

Credit: 4

101 General Chemistry I

An introduction to chemistry, including atomic structure, the chemical bond, the principles of chemical change, states of matter, solutions and nuclear chemistry.

Credit: 4

104 General Chemistry II

A second semester general chemistry course intoducing the topics of equilibrium, kinetics, thermodynamics, electrochemistry and descriptive chemistry. Qualitative analysis is included in the laboratory portion of this course. Prerequisite: Chem 101 or 103.

Credit: 4

300 Foundations of Organic Chemistry

A study of the properties, reactions, and uses of the major classes of organic compounds. Theory to relate the structure of organic molecules to their physical properties and chemical reactions is presented as a unifying principle. Applications of organic chemistry to the life sciences and to environmental problems are emphasized. A terminal organic chemistry course recommended for students in the allied health sciences when only one semester of organic chemistry is required. Credit is applicable to a minor in chemistry. (Students with credit in Chem 300 cannot earn credit in Chem 303 and 305.) Chem 300 does not satisfy the prerequisite requirements for Chem 304. Prerequisite: Chem 104.

Credit: 5

301 Quantitative Analysis

Theory and practice of volumetric, gravimetric, electrometric, and colorimetric analysis. Prerequisite: Chem 104. Open to sophomores.

Credit: 4

303 Organic Chemistry Theory

Properties of typical mono-functional aliphatic and aromatic compounds; theories and mechanisms to account for their behavior. Prerequisite: Chem 104. Open to sophomores. (Students with credit in Chem 300 cannot earn credit in Chem 303.)

Credit: 3

305 Organic Chemistry Laboratory

An introduction to common synthetic and separtion techniques. Emphasis placed on student planning. Prerequisite: Chem 303* (Students with credit in Chem 300 cannot earn credit in Chem 305) Lab 4 *Concurrent registration in Chem 304 is recommended.

Credit: 2

111 Algebra

Topics include polynomials, linear and quadratic equations and inequalities, exponential and logarithmic functions. (Not recommended for students with two years of high school algebra.)

Credit: 3

122 College Algebra and Trigonometry

An introduction to elementary functions via algebra and trigonometry. Topics include real numbers, polynominal and rational functions, exponential and logarithmic functions, trigonometric functions with applications, complex numbers, introduction to analytic geometry. Prerequisite: Math 111 or two years of high school algebra. (Successful completion of Math 122 precludes taking Math 111 for credit. Successful completion of any course numbered 207 or higher precludes taking either Math 122 or 111 for credit.

Credit: 5

331/Radiation Biology
531

Applications and effects of nuclear radiation on biological systems. Prerequisites Biol 100, one additional course in biol, and two semesters of Chem I.

Credit: 3

361 Radiochemistry

A study of the decay of radioactive elements, detection of radiation, methods of analysis and applications such as neutron activation and radioactive dating. Prerequisite: Three Semesters of chemistry courses.

Credit: 3

461/Nuclear Chemistry
661

A study of the decay of radioactive isotopes with emphasis on the theory of nuclear decay. Laboratory will include the study of the detection of radiation, methods of radioanalysis and the safe handling of unsealed radioactive sources. Prerequisite: Four semesters of chemistry courses.

Credit: 4

205 Elementary Statistics

An introductory course for students of all disciplines including fundamentals of modern statistical methods such as descriptive statistics; normal, binomial, and Poisson distributions; estimation theory; testing hypotheses including Z, t, F, and Chi-Square tests; correlation, and simple linear regression. Prerequisite: One year of high school algebra or Math 111.

Credit: 4

376 Nuclear Radiation Instruments, Measurements and Safety

Structure, behavior, operation, and uses of nuclear radiation detection instruments. Qualitative and quantitive measurements of alpha, beta and gamma radiations. Statistics of nuclear counting. Interactions between radiation and matter. Safety practices, regualtion by governmental agencies. Prerequisite: One year of general physics or general chemistry.

Credit: 2

404 Clinical Internship

Involves full time closely supervised clinical education for one calendar year in an approved school of nuclear medicine technology. Interns take coursework related to their discipline and receive clinical experience. Prerequisite: Admission to the internship by a hospital with an approved school of nuclear medicine technology and completion of all university requirements.

Credit: 34

110 College English I

An introductory course in composition.

Credit: 3

301 Advanced Composition

Emphasis on the writing of judicial criticism of short stories, poems, and plays. Some attention given to original writing. Intended primarily for English majors and minors. (Not applicable for credit on the minor tc students who have had Engl 305.) Prerequisites: Six credits in 200 level English courses, or consent of instructor.

Credit: 3

303 College English II

An advanced course devoted to the theory and practice of expository writing and related rhetorical forms, especially persuasion and argument. Emphasis placed on coherent organization, clear and forceful phrasing, logical thinking and other aspects of effective communication. Required of all students for graduation except those who take English 301 or 305 and those exempted on the basis of achievement in English 110. (Not open for English major or minor credit.) Prerequisites: Engl 110 and at least Sophomore standing.

Credit: 3

101 Principles of Effective Speaking

Consideration of the process of oral communication and principles of speech with application of these basic principles in selected speaking projects.

Credit: 2

100 Principles of Biology

A foundation course dealing with the living system primarily at the cellular level. Chemical composition, structure, metabolism, reproduction inheritance, ecology, and evolution are stressed.

Credit: 4

201 Human Biology

Biological principles and concepts relevant to the human body, society and the environment. Prerequisite: Biol 100. Not applicable for a major or minor in Biology.

Credit: 4

204 Plant Biology

An investigation of the general structure and morphology of plants, and an inquiry into their growth and development. Prerequisite: Biol 100.

Credit: 4

211 Vertebrate Zoology

Anatomy, physiology, and evolution of the vertebrates. White rat as the basic study animal, supplemented by other forms as needed. Prerequisite: Biol 100.

Credit: 4

212 Invertebrate Zoology

Primarily, a consideration of animals from the protozoan level through the echinoderm. The emphasis is on classification, life cycles, and evolutionary relationships. Prerequisite: Biol 100

Credit: 4

100 Contemporary Chemistry

A terminal, non-mathematical course focusing on applied chemistry. Emphasis is placed on selected topics in organic chemistry, biochemistry, and nuclear chemistry that are pertinent to today's problems.

Credit: 4

103 General Chemistry I

For selected students with good backgrounds in chemistry and mathematics. Topics treated in greater depth than in Chem 101. (Students with credit in Chem 101 cannot earncredit in Chem 103.)

Credit: 4

104 General Chemistry II

A second semester general chemistry course introducing the topics of equilibrium, kinetics, thermondynamics, electrochemistry and descriptive chemistry. Qualitative analysis is included in the laboratory portion of this course. Prerequisite: Chem 101 or 103.

Credit: 4

121 Weather and Climate

A general introduction to basic climatology including an analysis of the elements of weather and climate with their associated world patterns. Attention is given to the classification of North American air masses and interpretation of daily weather maps.

Credit: 4

122 Maps and Landforms

Introduction to map reading and the geography of landforms. Includes elements of location and map use and a study of earth materials and landforms. Laboratory experience with topographic maps and common rocks and minerals. May be taken separately or in conjunction with Geog/Earth Sci 121 to gain an introduction to the physical earth as the home of man.

Credit: 4

103 Elementary Physical

Mechanics, properties of matter. Physical measurement, classical study of force, torque, dynamics, energy, machines, fluids, gases, liquids, solids, thermodynamics. Applications from allied health and engineering fields. Prerequisite: Ability to solve simple algebraic equations. (Not recommended for physics majors or minors.)

Credit: 4

104 Elementary Physics II

Wave phenomena, electricity and magnetism, modern physics. Study of waves, sound light, optics, electricity, atoms and nuclei. Applications from allied health and engineering fields. Prerequisite: Physics 103 recommended and ability to solve simple algebraic equations.

Credit: 4

201 General Physics Theory I

Topics include classical mechanics, wave motion, fluids and thermodynamics using calculus. Prerequisite: Math 207 (or concurrent registration.)

Credit: 4

202 General Physics Theory II

Continuation of Physics 201. Includes electricity, magnetism and optics. Prerequisite: Phys 201 (Math 208 recommended).

Credit: 4

155 Descriptive Astronomy I

Fundamentals, history and frontiers of astronomy. An examination of the earth's place in space and our neighborhood of the universe. A study of the origin and evolution of the solar system. A description of the moon, the planets, asteriods, comets and meteors.

Credit: 4

156 Descriptive Astronomy II

A study of the nature of light, the sun, properties of other stars, star clusters, the Milky Way galaxy, other galaxies, quasars, black holes, and cosmology. Prerequisite: Phys 155.

Credit: 4

107 Contemporary Mathematics

An intuitive approach to contemporary mathematics. Material presented from such topics as symbolic logic, set theory, matrices, probability, graph theory and game theory.

Credit: 4

205 Elementary Statistics

An introductory course for students of all disciplines including fundamentals of modern statistical methods such as descriptive statistics; normal, binomial, and Poisson distributions, estimation theory; testing hypotheses including Z, t, F, and Chi-Square tests; correlation, and simple linear regression. Prerequisite: One year of high school algebra or Math 111.

Credit: 4

110 Introduction to Computer Science

A basic course in computer theory and applications. The student will gain some proficiency in a problem-oriented language including program execution on a computer.

Credit: 4

101 World Civilizations: Western

The development of western civilization from the ancient Greeks to the modern world.

Credit: 3

102 World Civilizations: Non-Western

The non-western world with particular emphasis on the early civilizations of the Middle East and Asia and on the current Third World. (May be taken before Hist 101.)

Credit: 3

201 United States History I

Survey of the development of the nation from the time of the expansion of Europe to the mid-nineteenth century.

Credit: 3

202 United States History II

Survey of the development of the nation since the mid-nineteenth century.

Credit: 3

100 Introduction to Anthropology

Elements of general anthropology with a threefold emphasis on archaeology, human evolution, and culture. Comparative study of contemporary and non-literate peoples.

Credit: 3

180 Principles of Economics I

Introduction to macroeconomic principles. Application of these principles to current problems. General topics include: economic way of thinking, characteristics of market systems and competitive market behavior, national income theory, money and banking, policies for controlling inflation and unemployment, and the fundamentals of economic growth.

Credit: 3

201 Introduction to Mass Communications

A survey of the mass communications field. General description of the mass media, especially newspapers, radio, television, and magazines; their role in society; how they work together and their effect on society.

Credit: 3

101 American National Government

An introduction to the underlying principles and values, administrative and decision-making processes, and institutions of American government including discussion and analysis of problems and current issues in American politics and society. This course also serves as an introduction to political science and is a prerequisite for many advanced offerings in the department.

Credit: 3

100 Introductory Sociology

Interrelations of personality, social organization, and culture. Major social processes and institutions.

Credit: 3

190 Principles of Economics II

Introduction to microeconomic principles. Application of these principles to current problems. General topics include: demand and consumer behavior, the firm and market structures, international economic relations, comparative economic systems, and current issues with microeconomic content.

Credit: 3

102 State and Local Government

An intorduction to state and local governments, focusing on institutions, administrative and decision-making processes, problems and underlying values in American society. The approach is comparative, although special attention is given to Wisconsin state and local government.

Credit: 3

201 General Psychology

A general survey of the principles of behavior and contemporary psychology. Topics include human development, personality, learning and thinking, perception, testing, mental health, biological and social aspects of behavior.

Credit: 3

220 Social Problems

Personal and social maladjustments, problems of poverty, physical and mental deficiencies, crime, delinquency, family disorganization, and racial and cultural minorities.

Credit: 3

102 Art Appreciation

Understanding and appreciation of painting, sculpture, and architecture. Basic components of a work or art and some general concepts of the history of art. Integration of experimental and exploratory studio experience.

Credit: 2

105 Music Appreciation

Elements of musical understanding. Emphasis in listening to music of all periods of music history.

Credit: 2

104 Dance Appreciation

Folk, national dancing, and modern dance as communicative art. Contributions of dance to the cultural needs of society. Lecture, discussion, and participation in dance forms.

Credit: 2

111 Theatre Appreciation

A study of theatre as an art form. Emphasis on the role of the audience and their understanding and appreciation of the elements of a theatrical production.

Credit: 2

201 American Literature I

Survey from colonial times to the Civil War. Prerequisite: Engl 110.

Credit: 3

202 American Literature II

Survey from the Civil War into the twentieth century. Prerequisite: Engl 110.

Credit: 3

203 Survey of English Literature I

From Beowulf into the 18th Century, with attention to social, historical, and continental literary background. Prerequisite: Engl 110.

Credit: 3

204 Survey of English Literature II

From 18th Century to the present with attention to social, historical, and continental literary background. Prerequisite: Engl 110.

Credit: 3

205 World Literature I

A survey of western literature from Biblical times to the Renaissance, distinguishing major trends and their interrelationships. Prerequisite: Engl 110.

Credit: 3

206 World Literature II

A survey of western literature from the Renaissance to the present, distinquishing major trends and their interrelationships. Prerequisite: Engl 110.

Credit: 3

210 The Literature of Black America

Survey of Balck American prose and poetry with emphasis on the twentieth century. Prerequisite: Engl 110.

Credit: 3

215 Afro-American Authors

An intensive study of principal Afro-American authors involving their relationship to the general field of American literature and their unique contributions as representatives of Afro-American culture. Prerequisite: Engl 110.

Credit: 3

100 Introduction to Philosophy

An introduction to the major views on important philosophic issues, such as knowledge, religion, morals, science, art, values, and society.

Credit: 3

101 Elementary French I

Oral and written French, reading, grammar. A year of high school French is equivalent to French 101.

Credit: 4

102 Elementary French II

Oral and written French, reading, grammar. A year of high school French is equivalent to French 101 as a prerequisite for French 102.

Credit: 4

101 Elementary German I

Oral and written German, reading, grammar. A year of high school German is equivalent to German 101.

Credit: 4

102 Elementary German II

Oral and written German, reading, grammer. A year of high school German is equivalent to German 101 as a prerequisite to German 102.

Credit: 4

101 Elementary Spanish I

Oral and written Spanish, reading, grammar. A year of high school Spanish is equivalent to Spanish 101.

Credit: 4

102 Elementary Spanish II

Oral and written Spanish, reading, grammar. A year of high school Spanish is equivalent to Spanish 101.

Credit: 4

201 French Grammar and Oral Review

A complete review of French grammar with reinforcement of the oral skills at the intermediate level. French 201 and 202 may be taken simultaneously in the spring semester. Prerequisite: French 102 or two years of high school French.

Credit: 4

202 French Readings and Conversation

An introduction to reading skills and to conversation in French. Grammatical concepts to be reinforced via the readings in French. See also Fren 203. Prerequisite: Fren 201 or three years of high school French.

Credit: 4

201 Intermediate German I

Oral and written German,reading, grammar. Prerequisite: German 102 or two years of high school German.

Credit: 4

202 Intermediate German II

Oral and written German, reading, grammar. Prerequisite: German 201 or three years of high school German.

Credit: 4

201 Intermediate Spanish I

Oral and written Spanish, reading, grammar. Prerequisite: Spanish 102 or two years of high school Spanish.

Credit: 4

202 Intermediate Spanish II

Oral and written Spanish, reading, grammar. Prerequisite: Spanish 201 or three years of high school Spanish.

Credit: 4

100 Physical Activities

Two semesters required of all students in regular degree curriculums.

Credit: 1 each sem.

100 Contemporary American Education

The American system of education and contemporary issues, implications related to citizenship preparation, personal development, career development.

Credit: 3

101 Personal Health

The dynamics of health in modern life in a rapidly changing world; modern concepts of health, disease, and longevity; current medical findings relative to weight control, emotional health, human sexuality, family planning, venereal and other disease control, drug abuse, environmental health and quackery are included.

Credit: 2

The following is a list of high school courses that are recommended to prepare fully for the NUCLEAR MEDICINE TECHNOLOGIST program at any college or University in Wisconsin. See Appendix I for the course descriptions.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

Physics

Advanced Algebra with Trigonometry

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Physical Geography

Computer Lit.

Economics

Sociology

RADIATION THERAPY TECHNOLOGIST

The following course outline is representative of an educational program at any teaching hospital in the state of Wisconsin. Students are advised to consult the bulletins of the hospital of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

This program is designed for persons who are registered x-ray technicians and wish to further their education in the field of radiation therapy. Upon successful completion of the course these persons will be registry eligible and certified in radiation therapy thechnology.

COURSES INCLUDED

Physics-	fundamentals of basic electricity and radiation physics, principles underlying the operation of radiation therapy equipment and auxiliary devices.
Brachytherapy-	the study of radiation therapy by use of radioactive materials at a very close distance to the patient.
Radiation - Protection	the study of safety procedures necessary to protect oneself, co-workers and patients from unnecessary exposure to ionizing radiation.
Mathematics-	a review of general mathematics and introduction to mathematics as specifically applied to the routine practice of radiation therapy.
Pathology-	an introduction to the elements of the principles of the normal cell cycle, inflammation and repair mechanisms. The development and definition of malignant and abnormal pathology. Tumor development, grading, and staging systems will be presented as well as tumor classification systems.
Radiobiology-	the study of the biological effects of ionizing radiation on living tissue after an interaction with ionizing radiation.
Anatomy & - Physiology	a detailed study of the various systems, structures and organs of the body and the functions of each.
Radiotherapy- Technology	the study of the technical aspects of patient management in radiation therapy. The course covers beam direction, immobilization procedures and dosage calculations.
Nursing - Procedures	the study of those nursing procedures pertinent to the care and examination of the cancer patient in the Radiation Oncology Department.
Clinical - Radiotherapy	the study of overall management of the cancer patient. The course covers the history of the disease, staging pathology, treatment and rational of the type of treatment.
Ethics/ - Psychology	the study of good ethical principles concerning patients, medical staff, patients' families, and co-workers.

The following is a list of high school courses that are recommended to prepare fully for the RADIATION THERAPY TECHNOLOGIST program at any teaching hospital in the state of Wisconsin. See Appendix I for the course descriptions.

See RADIOLOGIC (X-RAY) TECHNOLOGIST program for recommended courses.

RADIOLOGIC (X-RAY) TECHNOLOGIST

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies reguarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester

			Credits
RadTec	101	Introduction to Radiology	3
RadTec	111	Radiographic Procedures 1	3
Eng	151	Communication Skills 1	3
NatSci	138	Body Structure and Function	3
SocSci	151	Psychology of Human Relations	3
Elective			3
			18

Second Semester

RadTec	112	Radiographic Procedures 2	3
RadTec	121	Applied Clinical Radiography 1	5
RadTec	131	Radiographic Techniques 1	3
Eng	152	Communication Skills 2	3
SocSci	110	The American Economy	3
			18

Summer Session (6 weeks)

RadTec	113	Radiographic Procedures 3	1
RadTec	122	Applied Clinical Radiography 2	3
			4

Second Year First Semester

RadTec	123	Applied Clinical Radiography 3	6
RadTec	132	Radiographic Techniques 2	3
RadTec	141	Radiologic Technology Science 1	3
SocSci	153	American Institutions	3
			15

Second Semester

RadTec	124	Applied Clinical Radiography 4	7
RadTec	142	Radiologic Technology Science 2	3
RadTec	151	Special Radiographic Procedures	3
PhyEd	101	Physical Education	1
			14

Sumer Session (16 weeks)

RadTec	125	Applied Clinical Radiography 5 (See Note below)	0

Note - This course is required to meet standards to become eligible to write the National Registry examination leading to cerification as a Registered Radiologic Technologist.

RADIOLOGIC (X-RAY) TECHNOLOGIST

COURSE DESCRIPTIONS

101 Introduction to Radiologic Technology

An introduction to the career field of radiologic technology, radiation protection, professional ethics, prime exposure factors, technical factors of film quality, and nursing procedures. The operation of energized x-ray units is demonstrated. Students perform experiments to emphasize how KVP, MA, Time, and Source-image distance affect radiographic film quality. Students are also introduced to the clinical aspects of radiologic technology. Participants observe and assist radiologic technologists with various nursing and radiologic procedures. Successful completion satisfies the Orientation requirement.

Credit: 3

111 Radiographic Procedures 1

Fundamentals of radiographic positioning and the terminology used to describe radiologic procedures are studied. Standard radiographic projections are discussed and demonstrated for the chest, abdomen, upper extremity, shoulder girdle, lower extremity, and pelvic girdle. Anatomy demonstrated on radiographs is emphasized. Students produce radiographs on radiographic phantoms. Participants are also introduced to the common radiographic procedures using contrast media and fluoroscopy. Medical terminology is also presented.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

138 Body Structure and Function

A survey of the normal structure and function of the human body. Some structural anomalies and functional dysfunctions are discussed. Laboratory exercises are performed for a better understanding of the structure and function of the human body. Prerequisite: One year of a high school biological science.

Credit: 3

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

112 Radiographic Procedures 2

Terminology used to describe radiographic positioning involving the vertebral column, bony thorax, and skull including intra-oral views is discussed. The standard radiographic projections are described and demonstrated. Anatomy demonstration is emphasized. Students produce radiographs on radiographic phantoms. Prerequisite: RadTec 111.

Credit: 3

121 Applied Clinical Radiography 1

Students take standard radiographs of the chest, abdomen, and extremities under supervision of a qualified radiologic technologist. They assist technologists with standard radiographs of the spine and skull, and radiologists with fluoroscopic examinations. Prerequisite: RadTec 101

Credit: 5

131 Radiographic Techniques 1

Through discussion, the student is introduced to the characteristics of radiographic film, construction and design of radiographic darkrooms, and manual and automatic processing techniques, including the processing chemistry needed for each. Also described are radiographic principles, with emphasis on radiation protection and radiographic film quality. Methods of reducing patient exposure to ionizing radiation through the selection of proper exposure factors and the use of accessory devices are demonstrated.

Credit: 3

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151, or 101 with the permission of the department.

Credit: 3

110 The American Economy

A general introduction to major institutions and principles which underlie our contemporary American economic system. The course is designed both to serve the general student and as an introduction to SocSci 211 and 212. Topics considered are: the nature of economics and economic performance, government in a free enterprise system, problems regarding business and labor organizations, and economic growth and development.

Credit: 3

113 Radiographic Procedures 3

Radiologic procedures pertinent to pediatric, surgical, and bedside radiography are discussed. Principles of radiographic projections are described and demonstrated. Anatomy viewed on radiographs is emphasized. Students produce radiographs on radiographic phantoms and simulate procedures using live models. Prerequisite: RadTec 112.

Credit: 1

122 Applied Clinical Radiography 2

In this continuation of Applied Clinical Radiography 1, students take standard radiographs of the spine and skull under close supervision of a qualified radiologic technologist. They observe and assist the technologist in obtaining radiographs on pediatric, bedside, trauma, or surgical patients. Radiographs of the chest, abdomen, and extremities may be accomplished under limited supervision. Prerequisite: RadTec 121.
Credit: 3

123 Applied Clinical Radiography 3

This is a continuation of Applied Clinical Radiography 2. Students take radiographs of pediatric, bedside, trauma, and surgical patients under close supervision of a qualified radiologic technologist. Radiographs of the spine and skull may be taken under limited supervision. From this course forward, students may be rotated to various shifts to ensure optimal clinical experiences. Prerequisite: RadTec 122.
Credit: 6

141 Radiologic Technology Science 1

A discussion of magnetism, electromagnetism, electric motors, generators, x-ray production, interaction of x-rays with matter, basic single-phase and three-phase x-ray circuits, methods of rectification, construction of x-ray, tubes, and methods of x-ray detection and measurement. Students perform laboratory experiments to demonstrate how KVP, MAS, Distance, and Collimation affect potential exposure to ionizing radiation.
Credit: 3

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology, and government. Subject matter is flexible and may be altered as societal change makes it necessary.
Credit: 3

124 Applied Clinical Radiography 4

This is continuation of Applied Clinical Radiography 3. Students take standard radiographs with limited supervision on pediatric, bedside, trauma, and surgical patients. They observe and assist in nuclear medicine and radiotherapy. Prerequisite: RadTec 123
Credit: 7

142 Radiologic Technology Science 2

A continuation of Radiologic Technology Science 1. This course studies the science of radiotherapy, nuclear medicine technology, and protection from radiation. Radiation biology, dosimetry, and health physics are included. Discussions and demonstrations are used to explain how half-value layers affect percentage depth dose, treatment field area, and source-surface distance. Emphasis is placed on personnel and patient protection from radiation. Prerequisite: RadTec 141.
Credit: 3

151 Special Radiographic Procedures

Students are introduced through demonstration and discussion to the specialized and highly technical procedures in radiography, the use of pressure injectors, rapid film changers, and other specialized radiographic equipement. The medical indications and anatomy demonstrated for each examination are surveyed in an integrated approach which includes a study of medical and surgical diseases. Departmental administration is described to acquaint the participant with the organization, function, supervision, and financial arrangements relative to departments of radiology.

Credit: 3

101 Physical Education

This coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. Students furnish their own personal equipment.

Credit: 1

The following is a list of high school courses that are recommended to prepare fully for the RADIOLOGIC (X-RAY) TECHNOLOGIST program at a technical college in the state of Wisconsin. See Appendix I for the course descriptions.

Biology

English Language Arts

Developmental Writing

Psychology

Economics

Advanced Algebra

Physics

Chemistry

DENTAL SERVICES

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DENTAL ASSISTANT

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic course in the following curriculum.

COURSE OUTLINES

First Year		First Semester	Credits
Dental	101	Professional Orientation for the Dental Assistant	2
Dental	103	Dental Theory 1	2
Dental	108	Dental Chairside Assisting 1	6
Dental	113	Radiography	2
SecSci	152	Dental Office Procedure	2
Eng	151	Communication Skills 1	3
			17

Second Semester			
Dental	104	Dental Theory 2	2
Dental	109	Dental Chairside Assisting 2	6
Dental	115	Dental Materials	4
Eng	152	Communication Skills 2	3
SocSci	151	Psychology of Human Relations	3
			18

DENTAL ASSISTANT

COURSE DESCRIPTIONS

101 Professional Orientation for the Dental Assistant

A course covering orientation to the purpose of the school, benefits to the student, and student responsibilities. Health principles basic to personal grooming, characteristices of the health worker, conduct in the professional office, and patient management methods are discussed. An introduction to the dental profession is offered through a study of dental history. Laws and ethics of the American Dental Association and auxiliary associations are discussed, including the certification program for dental assistants.

Credit: 2

103 Dental Theory 1

Oral anatomy and physiology are studied with emphasis on tooth development, function, and structure. Cells, tissues, and body systems and functions are studied in relation to dental aspects and influences. Prerequisite: One year of high school biology.

Credit: 2

108 Dental Chairside Assisting 1

This course emphasizes the role of the chairside assistant in dental practice. The student learns the names, use, function, and maintenance of all instruments and materials commonly found in the dental office. Sterilization procedures are practiced. Tray setups and restorative materials are prepared for use at chairside. Practical clinical experience is provided in four-handed chairside assisting techniques. Extramural clinical facilities include a dental school, hospitals, and selected private dental offices.

Credit: 6

113 Radiography

Instruction is given in the theory and techniques of radiography in dentistry, with the use of manikins and clinical patients. The student exposes, processes, and mounts the dental x-ray films. Both the hazards of radiation and the value of diagnostic radiography are reviewed. Prerequisite: Concurrent registration in Dental 108.

Credit: 2

152 Dental Office Procedures

This course emphasizes the typing and preparation of correspondence and business forms. Attention is also given to record keeping, filing, and appointment scheduling as they relate to the dental office.

Credit: 2

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

104 Dental Theory 2

Instruction is given in the basic principles of microbiology, use of drugs and dental medicaments, pathology, diet, and nutrition. Preventive dentistry is integrated with all units of instruction. Prerequisite: Dental 103.

Credit: 2

109 Dental Chairside Assisting 2

Practical experience in general and specialty chairside assisting skills is provided in extramural clinical facilities. The student learns to maintain appointment, bookkeeping, financial, and inventory records. Basic principles of first aid are reviewed, and instruction is given in the use of dental office emergency equipment. Prerequisities: Dental 108 and 113.

Credit: 6

115 Dental Materials

Dental materials and laboratory procedures employed in the fabrication of dental appliances are surveyed. Laboratory sessions include both demonstration and practice in the use of materials commonly used in the dental office laboratory. Prerequisite: Dental 108.

Credit: 4

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

151 Psychology of Human Relations

A study of psychology principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, preception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the DENTAL ASSISTANT program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

Biology

Typewriting (I)

English Language Arts

Developmental Writing

Psychology

DENTAL HYGIENIST

The following course outline is representative of an education program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and course descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

FIRST YEAR

First Semester			Credits
Dental	153	Dental Anatomy	2
Dental	154	Head and Neck Anatomy	1
Dental	155	Clinical Dental Hygiene 1	2
*Eng	101	English 1 or	
Eng	151	Communication Skills 1	3
NatSci	103	Anatomy and Physiology	5
NatSci	156	Chemistry for the Health Services	5
			18

Second Semester			
Dental	156	Clinial Dental Hygiene 2	5
Dental	161	General Pathology	2
Dental	162	Radiography	2
Dental	164	Nutrition	1
*Eng	102	English 2 or	
Eng	152	Communication Skills 2	3
NatSci	109	Microbiology	4
PhyEd	101	Physical Education	1
			18

SECOND YEAR

First Semester			
Dental	157	Clinical Dental Hygiene 3	5
Dental	160	Dental Materials and Assisting Techniques	2
Dental	166	Periodontology	2
Dental	168	Histology and Embryology	2
Dental	170	Oral Pathology	2
Dental	176	Pharmacology	2
SocSci	151	Psychology of Human Relations	3
			18

Second Semester	Credits
Dental 158 Clinical Dental Hygiene 4	5
Dental 172 Pracitce Administration	2
Dental 174 Social Aspects of Dental Hygiene and Public Health	3
SocSci 110 Bacis Economics	3
SocSci 153 American Institutions	3
	16

*Those electing to take Eng 101 and 102 instead of Eng 151 and 152 will be required to take 3 additional credits - Speech 101 - before graduating. This course may be taken in summer school or in day or evening school.

DENTAL HYGIENIST

COURSE DESCRIPTIONS

153 DENTAL ANATOMY

Tooth development structure, and function are studied in preparation for clinical application. Root morphology is emphasized. Laboratory sessions include a variety of self-study projects which use study models, radiographs, natural teeth, and tooth-carving exercies. Prerequisite: Acceptance into the Dental Hygiene program.

Credit: 2

154 HEAD AND NECK ANATOMY

Consideration is given to specific structures in the head and neck. Oral anatomy and physiology are emphasized so that the student will recognize normal conditions of the hard and soft tissues. Prerequisite: Acceptance into the Dental Hygiene program and concurrent registratiom in Nat Sci 103.

Credit: 1

155 CLINICAL DENTAL HYGIENE 1

Students are introduced to the dental hygiene program and the dental hygiene profession through the study of dentistry and its organizations. Proper personal and professional conduct is stressed. Instruction is given in the techniques of instrumentation for removing stains and deposits from the teeth. Practice is provided on manikins and clinical patients. Dental health problems are discussed with emphasis on the prevention of oral diseases through effective patient counseling and various clinical techniques. Successful completion satisfies the orientation requirement. Prerequisite: Concurrent registration in Dental 153 and 154.

Credit: 2

101 ENGLISH 1

The object of Eng 101 is to develop the student's writing and thinking ability to the extent possible. He writes expository and argumentaive compositions and reads and examines essays for both content and structure Problems of mechanics and usage are given concentrated study.

Credit: 3

103 ANATONY AND PHYSIOLOGY

A general course which presents the normal structural and functional activities of the human body. Each system of the body is structurally and functionally discussed. Structural anomalies and functional dysfuctions are discussed briefly. Laboratory studies of the systems aided by the use of models and skeletons and by student dissections of cats and other animal speciments. Prerequisite: One year of either high school biology or high school general science.

Credit: 5

156 CHEMISTRY FOR THE HEALTH SCIENCES

Emphasis throughout is on the physiological aspects of materials involved in the functioning of living systems. The course includes a study of chemical bonding, some organic compounds of biological interest, acid-base balance enzymes, digestion and utilization of foods, blood and urine components and isotopes in medicine. Lecture material is reinforced by laboratory work. Prerequisite: One year of high school chemistry or Nat Sci 110.

Credit: 5

156 CLINICAL DENTAL HYGIENE 2

Clinical application is made of the theory and techniques of oral prophylaxis. Instruction is given in providing the patient with a thorough personal oral hygiene program and in the observation of results of preventive procedures through effective recall scheduling. The student is prepared to provide first aid treatment in case of dental office emergencies. Prerequisites: Denatal 153,154 and 155 and Nat Sci 103.

Credit: 5

161 GENERAL PATHOLOGY

Disease processes and etiology are considered. Special emphasis is placed on systemic disorders. Prerequisites: Denal 153,154 and 155.

Credit: 2

162 RADIOGRAPHY

Instruction is given in the theory and techniques of radiography in dentistry, with the use of manikins and clinical patients. The student practices exposing, processing and mounting dental x-ray films. Lectures stress both the hazards of radiation and the value of diagnostic radiography. Prerequisities: Dental 153 and 154, and concurrent registration in Dental 156.

Credit: 2

164 NUTRITION

The fundamental principles of nutrition are presented, with emphasis on nutritional requirements for the development of sound teeth and maintenance of good oral health. Prerequisites: Dental 153 and 154, and Nat Sci 103.

Credit: 1

102 ENGLISH 2

The intent of Eng 102 is to give the student further training in composition, and to enlarge his understanding and appreciation of the genres by requiring him to analyze and write about fiction, drama, and poetry. Major attention is also given to the preparation and writing of the research paper. Prerequisite: Eng 101.

Credit: 3

109 MICROBIOLOGY

Basic facts of microbiology are presented, and a general understanding is gained of various laboratory methods used to study microorganisms. Emphasis is placed on the effect of organisms on the body, immunology, and the control of microorganisms. Prerequisite: One year of biology.

Credit: 4

101 PHYSICAL EDUCATION

This coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. The student furnishes his own personal equipment.

Credit: 1

157 CLINICAL DENTAL HYGIENE 3

Application and practice are provided with clinical patients in a professional atmosphere to develop knowledge and skill in dental prophylactic techniques, oral inspection, complete records, radiography, and application of topical medicaments. A complete dental health care program for patients is stressed. The student is taught to motivate patients and to make referrals for situations beyond the dental hygienist's legal responsiblities. Prerequisite: Dental 156.

Credit: 5

160 DENTAL MATERIALS AND ASSISTING TECHNIQUES

A study is made of the basic concepts of dental laboratory procedures. Laboratory sessions include demonstrations of dental materials and chairside assisting techniques. Students prepare restorative and impression materials as well as gypsum products. Prerequisites: Dental 153 and 154.

Credit: 2

166 PERIODONTOLOGY

The student gains skill in the recognition of normal and abnormal periodontal tissues. Current theories of the etiology of periodontal disease and periodontal therapy are discussed, with emphasis on prevention. Prerequisites: Dental 153 and 154, and Nat Sci 109.

Credit: 2

168 HISTOLOGY AND EMBRYOLOGY

A study is made of the development of tissues and cells of the body, with emphasis on the head, neck, oral cavity, and tooth structure. Prerequisites: Dental 153, 154, and 156.

Credit: 2

170 ORAL PATHOLOGY

General principles of oral pathology are emphasized. Consideration is given to developmental disturbances, metabolic disorders, infectious diseases, and neoplastic changes as they affect the oral cavity. Prerequisites: Dental 156 and 161.

Credit: 2

176 PHARMACOLOGY

Consideration is given to the action, dosages, side effect, and administration of drugs and medicaments used in dentistry. Prerequisites: Dental 156 and Nat Sci 156.

Credit: 2

151 PSYCHOLOGY OF HUMAN RELATIONS

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

158 CLINICAL DENTAL HYGIENE 4

In this continuation of Clinical Dental Hygiene 3, the student gains proficiency and competence through additional clinical practice. Prerequisite: Dental 157.

Credit: 5

172 PRACTICE ADMINISTRATION

A general course presenting principles of dental office management,and ethical and legal considerations which affect the practice of dental hygiene. Prerequisite: Dental 157.

Credit 2

174 SOCIAL ASPECTS OF DENTAL HYGIENE AND PUBLIC HEALTH

The dental hygienist's role in community health programs and group conseling is emphasized through a study of the principles of health education and public health practices. Prerequisite: Dental 157.

Credit: 3

137

110 BASIC ECONOMICS

A general introduction to major institutions and principles which underlie our contemporary American economic system. The course is designed both to serve the general student and as an introduction to Soc Sci 111 and 112. Topics considered are: the nature of economics and economic systems, demands and supply, the measurement of economic performance, government in a free enterprise system, problems regarding business and labor organizations, and economic growth.

Credit 3

153 AMERICAN INSTITUTIONS

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as proverty, race, urbanization, the family, education, ecology, and government. Subject matter if flexible and may be altered as societal change makes it necessary.

Credit 3

The following is a list of high school courses that are recommended to prepare fully for the DENTAL HYGIENIST program at any technical college in the state of Wisconsin. See Appendix I for the course description.

- Biology
- Advanced Biology
- Chemistry
- English Language Arts
- Economics
- Psychology
- Developmental Writing
- Writing Seminar

DENTAL LABORATORY TECHNICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First year First Semester	Credit
Tooth Structure and Carving 101	4
Science for the Dental Technician 105	4
Complete Denture Techniques I 111	3
Dental Orientation and Terminology 151	2
Dental Materials 153	2
Communication Skills 1 151	3
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Second Semester	
Complete Denture Techniques 2 112	3
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Summer Session (Six Weeks)	
Crown and Bridge Techniques 1 121	3
Second Year First Semester	
Crown and Bridge Techniques 2 122	6
Dental Ethics, Legal aspects and Professional Relationships 157	2
Technical Mathematics 1 151	4
American Institutions 153	3
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Second Semester	
Dental Laboratory Practices 125	3
Dental Ceramics and Precision Attachments 128	6
Physical Education 101	1
Psychology of Human Relations 151	3
Business and Industrial Relations 155	3
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DENTAL LABORATORY TECHNICIAN

COURSE DESCRIPTIONS

101 Tooth Structure and Carving

The anatomy of the head, neck, and face is emphasized. Special attention is given to the histology, physiology, occlusion, and individual tooth anatomy. Laboratory work includes detailed drawings of each and the opportunity to carve, from wax, the coronal and root portions of the maxillary and mandibular incisors, bicuspids, and first molars from one side of the arch. Credit: 4

105 Science for the Dental Technician

This course introduces the basic concepts of physics and chemistry required by the dental technician as background for work with dental materials. Emphasis is placed on the chemical and physical properties of dental materials. Prerequisite: One year of high school chemistry.

Credit: 4

111 Complete Denture Techniques

Complete maxillary and mandibular dentures are constructed. The student learns to pour casts and to construct custom trays, base plates, occlusal rims and mounting casts. The use of the adjustable articulator, denture repair, and tooth replacement are covered, along with techniques in curing, finishing, and polishing. Prerequisite: DLab T 101 or concurrent registration in D Lab T 101

Credit: 3

151 Dental Orientation and Terminology

A short history is presented of the dental profession, the dental laboratory technician, and the various dental organizations, together with their relationships. Through a detailed study of terms and root words - prefixes and suffixes - the student becomes familiar with a dental vocabulary that will enable him to converse intelligently with the various members of the dental health team. Emphasis is placed on spelling, pronunciation, and definition of terms. Successful completion satisfies the Orientation requirement.

Credit: 2

153 Dental Materials

A study is made of dental materials, such as waxes, resins, gypsum products, impression and duplicating substances, metals, and dental alloys. Their manipulation and application relating to the contruction of dental prosthetic restorations are studied. Prerequisite: DLab T 105 or concurrent registration.

Credit: 2

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selceted from literature and the mass media.

Credit: 3

112 Complete Denture Techniques 2

In the continuation of DLab T 111, variations in denture construction due to anomalies are considered, along with the use of metal bases. Prerequisite: DLab T 111.

Credit: 3

116 Partial Denture Techniques

A study is made of the various types and component parts of removable partial dentures, with emphasis on the knowledge and skill needed in surveying, designing, and construction techniques. Laboratory projects include the construction of at least one maxillary and mandibular, cast gold alloy, removable partial denture. Techniques for relining, repair, and the construction of wrought wire alloy removable partial dentures are included. Prerequisite: DLab T 112 or concurrent registration in DLab T 112.

Credit: 6

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

121 Crown and Bridge Techniques 1

Basic techniques required for the construction of fixed bridges are presented. Casts and dies are made. Emphasis is placed upon the waxing, carving, investing, casting, and polishing of inlays, three-quarter and full crowns, and full crowns with facings and veneers. Soldering techniques are included. Prerequisites: DLab T 116 and 153.

Credit: 3

122 Crown and Bridge Techniques 2

Lecture and laboratory work covers techniques used in the construction of bridges combining acrylic resins and dental gold casting alloys. Laboratory projects include the construction of selected multiple-unit bridges. Techniques of crown and bridge construction using pin facings, pin ledge crowns, and non-rigid connectors are studied. Prerequisite: DLab T 121.

Credit: 6

157 Dental Ethics, Legal Aspects, and Professional Relationships

The ethical behavior and interpersonal relationships of dentist, patient, and technician are studied. The dental code of ethics for all dental auxiliary personnel is studied. The ethics of technician-dentist relationships are discussed. Dental laboratory business and legal aspects are included.

Credit: 2

151 Technical Mathematics 1

The student masters the basic mathematics topics needed by technicians. Technical Mathematics 1 includes these topics: signed numbers, operations with fractions, non-fractional and fractional equations, graphing, formula rearrangement, systems of two equations, formula derivation, number system, powers of ten, estimation, slide rule calculations, ratio and proportion, percent, and common logarithms. Prerequisite: One year of high school algebra.

Credit: 4

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology, and government. Subject matter is flexible and may be altered as societal change makes it necessary.

Credit: 3

125 Dental Laboratory Practices

Dental laboratory experience is gained through affiliation with a commerical or institutional dental laboratory and in the dentist's private laboratory. Special technical problem areas of dental laboratory technolgoy are discussed. A visit to a dental school is included. Prerequisite: DLab T 122.

Credit: 3

128 Dental Ceramics and Precision Attachments

A study is made of the manipulation and physical properties of porcelain and the staining and personalization of the porcelain teeth. Fabrication techniques of inlays and porcelain crowns and the bonding of porcelain and metal are included. Precision attachment techniques are studied. Prerequisite: DLab T 122.

Credit: 6

101 Physical Education

This coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. The student furnishes his own personal equipment.

Credit: 1

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

155 Business and Industrial Relations

An analysis of the place of labor and business management in the modern industrial economy of the United States, with some emphasis on understanding the nature and overall dimensions of the American economy. Topics include the problems of labor in an industrial environment, the development of American industry and of the American labor movement, unemployment, the level of wages and prices, and a consideration of present problems in this ares.

Credit: 3

The following is a list of High School courses that are recommended to prepare fully for the DENTAL LABORATORY TECHNICIAN program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

Biology

Chemistry

Advanced Algebra

English Language Arts

Developmental Writing

Psychology

DENTIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the the following curriculum.

PRE-DENTAL

GENERAL INFORMATION

The absolute requirements of dental schools are generally quite limited to allow you latitude for developing your undergraduate program. Here are the following requirements at Marquette University:

English	6 semester hours
Gen. Chemistry	8 semester hours
Organic Chemistry	8 semester hours
Physics	8 semester hours
Biology	8-9 semester hours
Electives	51-52 semester hours

All required courses in biology, chemistry and physics must include laboratory work.

Dental Schools generally refrain from specifying elective courses that should be taken. The majority of schools favor the selection of electives that will strengthen your science background, develop your communication skills and provide a solid background in the social sciences and humanities. For this reason you will be encouraged to take additional courses in biology)at Marquette, vertebrate physiology, neurobiology, microbiology, cell biology), some college mathematices (as preparation for college physics) and courses in English literature, history, sociology, psychology, philosophy and foreign language.

WHAT "MAJOR" SHOULD BE TAKEN BY A PRE-DENT STUDENT?

Although dental schools prefer applicants to have the Baccalaureate Degree, 3 years of undergraduate study is the minimum requirement for most schools. Since the trend is to three or four years, the student is well advised to pursue and undergraduate curriculum that will lead toward the award of the Bachelor's.

At Marquette University many pre-dental students elect to major in biology since all of the dental school requirements are satisfied by the requirements of the biology major. However, each student should feel free to develop his/her own major area of interest, realizing that the dental school is more interested in the quality and scope of work accomplished. It is indeed possible to major in non-science areas, carrying the necessary science courses as electives. However, since so much of dentistry has a scientific basis, the student who majors in a non-science field must excel in the required sciences to insure adequate preparation and favorable consideration of his/her application.

Since the biology major is frequently elected by pre-dental students, the following course sequence is given to help you plan your program.

FRESHMAN YEAR

General Biology
General Chemistry I
Modes of Discourse I
History of Western CivilizationI
Foreign Language/Social-Behavioral Science*

Principles of Biological Investigation/Calculus
General Chemistry II
Modes of Discourse II
History of Western Civilization II
Foreign Language/Philosophy of Man*

SOPHOMORE YEAR

Biology Elective
Organic Chemistry
Foreign Language/Social-Behavioral Science*
Literature/Philosophy
Mathematics/Logic/Computer Science

Molecular Basis of Biology
Organic Chemistry
Foreign Language/Social-Behavioral Science*
Literature
Theology

JUNIOR YEAR

Comparative Vertebrate Physiology
Philosoply or Literature
General Physics I
Foreign Language/Social-Behavioral Science*

Biology Elective
General Physics II
Foreign Language/Social-Behavioral Science*
Ethics
Literature
Literature/Fine Arts

SENIOR YEAR

Cell Biology
Environmental Biolgoy
Biology Laboratory
Philosophy elective
Theology elective

Genetics
Biology Laboratory
Philosophy elective
Theology elective
Calculus/liberal arts elective

* Language requirement varies according to high school background and proficiency.

The following is a list of High School courses that are recommended to prepare fully for the PRE-DENTAL program. See Appendix I for course descriptions.

- Biology
- Advanced Biology
- Chemistry
- Advanced Chemistry
- Physics
- English Language Arts
- Developmental Writing
- Writing Seminar
- Advanced Algebra with Trigonometry
- Advanced Math
- Computer Lit.
- Psychology

DIETETICS and NUTRITION

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DIETETIC TECHNICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

Course Outline

First Semester	Credits
Basic Nutrition I 303-101	3
Food Science I 303-105	3
General Chemistry 806-155	4
General Mathematics 804-145	3
Personal Development 302-105	1
Introduction to Health Care and Dietetics with Extended Laboratory 303-108	3
	17

Second Semester	Credits
Sanitation Techniques 303-112	1
Basic Nutrition II with Extended Laboratory 303-102	4
Food Science II 303-106	3
Communications Skills I 801-151	3
Elective	3
Elective	3-4
	17-18

Third Semester	Credits
Psychology of Human Ralations 809-151	3
Biochemistry/Microbiology 806-158	4
Diet Therapy I with Extended Laboratory 303-110	5
Communications Skills II 801-152	3
Consumer Education 304-145	2
	17

Fourth Semester (1st Nine Weeks)	Credits
Food Service Management with Extended Laboratory 303-113	4
Diet Therapy II 303-111	3
Supervision & Personnel Management 303-120	2
	9

Fourth Semester (2nd Nine Weeks)	**Credits**
Dietetic Seminar 303-115	1
Extended Laboratory Experiences 303-116	6
	7

DIETETIC TECHNICIAN

COURSE DESCRIPTIONS

303-101 Basic Nutrition I

This course includes study of food nutrients, their digestion and absorption, and relationship of food to development and maintenance of health for all age groups. Fundamental principles of human nutrition are taught. The course also includes evaluation of various diets.

Credit: 3

303-105 Food Science I

Learning activities designed to provide the student with an understanding of sound food preparation methods and skills are discussed. Emphasis is placed on the preparation and science of food, as well as preserving the nutritive values of food. Also, understanding the physical and chemical properties of foods, recipe evaluation and control, sanitation, storage of foods, and quality for the finished products are taught.

Credit: 3

806-155 General Chemistry

The course is designed for those students in the associate degree programs who need a working knowledge of basic chemistry. Topics include structure of matter, measurement, formula writing, acids, bases, salts, chemical bonding, and topics on organic chemistry. Emphasis is placed on the practical aspects of inorganic chemistry and organic chemistry. Theory and application of physical and chemical properties are presented. Laboratory experiments accompany the presentation of theory.

Credit: 4

804-145 General Mathematics

The course presents the fundamentals of arithmetic, algebra, geometry, and their applications. It includes information on fractions, decimals, percents, integers, elementary algebra, linear equations, applied geometry, and metrication.

Credit: 3

302-105 Personal Development

This is a course designed to assist the individual student in developing a full potential to obtain employment, to successfully perform occupational duties, and to live a fulfilling life. Specifically, the course includes: information on grooming, poise, dress, etiquette, relationships with others and current problems facing young in today's society. The student is encouraged to set goals toward self-understanding.

Credit: 1

303-108 Introduction to Dietetics and Health Care with Extended Laboratory Experiences

This course's unit of study includes: profession of dietetics, role of

DT/NC, health and health care, financing for health care, health quackery, nutritional care in health care, and health care organizations and personnel. Extended laboratory experiences expose students to health care services, dietetic practice, and development of basic skills of client care, reporting and observing.

Credit: 3

303-112 Sanitation Techniques

Information is presented on food sanitation and microbiology, purchasing a sound food supply, food spoilage and foodborne illness, sanitary techniques of preparing, holding and serving food, and sanitary care of the physical plant, equipment, and utensils.

Credit: 1

3030-102 Basic Nutrition II with Extended Laboratory

This course includes application of the principles of nutrition to institutional food service programs. New developments in human nutrition, especially as applied to practical nutition problems, are studied. Reading and reports from current literature are included, along with critical appraisal related to human nutritional status and over and under-nutrition. Extending laboratory experiences in nutritional education in local cooperating institutions will be included.

Credit: 4

303-106 Food Science II

Menu planning, preparation of meals, sanitation, storage of foods, and quality standards for finished products are discussed in this course. Cultural ethnic menus, nutritive contents of each, and comparison with RDA and Basic Four Food Grouping are covered. Stress is placed on physical and chemical reactions involved in food component interactions, safety, and sanitation in actual food preparation.

Credit: 3

801-151 Communications Skills I

This course is designed to assist the student in acquiring skills in reading, writing, speaking, and listening. It includes these specific topics: the communications process, the language process, nonverbal communications, word group and sentence structure, paralanguage devices, the short written report, the information oral report, listening skills, and interpersonal communication psychology.

Credit: 3

809-151 Psychology of Human Relations

The study of psychology is designed to help students improve relationships with people they will meet in society, at home, and on the job through an understanding of themselves and others. The course includes the study and discussion of attitudes, maturity, responsibility, behavior, emotions, personality, mental health and mental illness, including discussions of alcohol and drug abuse. Job satisfaction is studied as it pertains to the student's social and economic welfare.

Credit: 3

806-158 Biochemistry/Microbiology

This includes study and chemical analysis of foods, tissues, and metabolic products; chemistry of food constituents as related to food quality and stability, and study of bacterial agents, molds, fungi, and yeasts in relation to food preparation, food spoilage, sanitation, and foodborne illness.
Credit: 4

303-110 Diet Therapy I with Extended Laboratory

This course covers principles and methods for the use of diet as a therapeutic measure in certain pathological conditions. Study includes dietary modifications to meet nutritional needs under normal and pathological conditions. Planning of diets to meet special health requirements is included. Laboratory preparation of modified diets and food procudts is part of the course, along with extending laboratory experiences in local cooperating agencies.
Credit: 5

801-152 Communications Skills II

Communications Skills II is designed to assist the student in acquiring skills in reading, writing, speaking, and listening. It includes these specific topics: the communications process, communication in organizations, written report formats, specific organizational reports, the informal oral report, communication through conferences, persuasion, and job application and interview.
Credit: 3

304-145 Consumer Education

Because many men and women working today are required to perform dual roles as worker and homemaker, it is imperative that they know how to manage their money, as well as time and energy, at home and on the job. This course includes information designed to make them better consumers and better managers; development of the decision-making process, use of community resources, home management, and consumer practices and responsibilities.
Credit: 2

303-113 Food Service Management with Extended Laboratory Experience

Course includes operation and managment of a food service unit with emphasis on institutional food purchasing, preparation, and storage; equipment selection and layout; and food service controls. Extended laboratory experience in local cooperating institutions is included.
Credit: 4

303-111 Diet Therapy II

This course covers physical and physiological changes in the child from infancy through adolescence as related to the nutritional states and diet modifications. Nutritional needs of older individuals and relation to digestion, absorption, and utilization of food are studied. Prerequisire: Diet Therapy I (303-110) with Extended Laboratory Experences.
Credit: 3

303-120 Supervison and Personnel Management

This is a study of the methods and problems of recruitment, selection, and employee assignment. Emphasis is given to the supervisor's responsibility to employer and management, the development of leadership qualities, supervisory procedures, and dealing with personnel problems.

Credit: 2

303-115 Dietetic Seminar

This seminar is designed to coincide with a nine-week extended laboratory experience. Small seminars center on concerns relating to operation and management of a food service unit, community resources, and other sources of information relating to nutrition and food service.

Credit: 1

303-116 Extended Laboratory Experience

On-the-Job learning activities provide the student with the opportunity to make use of methods, knowledge, and proficiencies acquired in course work and related laboratory experience while working in a hospital, nursing home, or public health situation, The student develops and refines skills and techniques in the career field under the close supervision of an experienced supervising teacher and in close association with a registered dietitian acting as a preceptor. Prerequisite: Completion of 3½ smemsters course work and extended laboratores in Dietetic Technician Program.

Credit: 6

The following is a list of High School courses that are recommended to prepare fully for the DIETETIC TECHINICIAN program at a technical college in the state of Wisconsin. See Appendix I for the course descriptions.

Biology

Chemistry

Psychology

English Language Arts

Developmental Writing

Advanced Algebra

Meal Mangaement

Chef Food

DIETITIAN

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic course in the following curriculum.

COURSE OUTLINE

LIBERAL STUDIES - 54 credits required	Credit
311-115 Introduction College Chemistry	5
320-201 General Economics	3
326-101 Freshman English: Composition	3
326-102 Freshman English: Reading and Related Writing	3
326-xxx Writing elective	3
366 xxx or 367-1xx Physical Education elective	2
387-110 Introductory Sociology	3
391-100 Fundamentals of Speech	2
421-303 Educational Psychology	2
242-201 Teaching Techniques in Home Economics	2
479-582 Personnel Management	3
479-110 General Psychology	3

Select five credits from the following areas: Biology, Chemistry Geography, Physics or 214-140 Textiles I.

Select fifteen credits from five of the following areas: Child Development and Family Life, Anthropology, Art, Literature, Foreign Language, History, Music, Philosophy, Political Science, Theatre(excluding Stagecraft) or 214-617 Social Psychological Aspects of Clothing.

MAJOR STUDIES - 58-65 credits required	
229-101 Dietetics as a Profession	1
229-212 Nutrition	3
229-240 Food Science	4
229-410 Advanced Nutrition	3
229-318 Meal Management Practicum	2
229-618 Diet Therapy	3
245-501 Food Service Administration	3
245-221 Quantity Food Production	3
245-222 Institutional Food Purchasing	2
308-132 Physiology and Anatomy	4
308-306 General Microbiology	4
311-201 Organic Chemistry Lecture	3
311-203 Organic Chemistry Lab	1
311-511 Biochemistry	3
354-130 Computational Statistics or	2
354-230 Statistical Methods	3
229-638 Experimental Foods or	3
229-661 Social and Cultural Aspects of Food	2
600-560 Audio-Visual Communications	2

Select either:

		Credit
xxx-xxx	Mathematics(three years of high school) or	0
355-xxx	Mathematics elective	4

Select one of the following courses:

160-206	Principles of Accounting or	3
160-245	Business Data Processing or	3
354-140	Computer Concepts	2

Select five credits from the following courses:

150-150	Industrial Orangization	2
150-530	Human Factors Engineering	3
229-xxx	Any Advanced Nutrition course	3
229-205	Nutrition for Weight Control	2
229-220	Outdoor Cooking	1
229-260	Menu Planning and Design	2
229-608	Advanced Meal Management Practicum	2
229-514	Food and Industry	2
229-606	Nutrition Education	2
229-633	Maternal and Child Nutrition	3
245-123	Essentials of Hospitality Service	1
245-312	Restaurant Operational Management	3
245-371	Food, Beverage and Labor Cost Controls	2
245-521	Food Service Equipment	2
245-602	The Extended Role of School Food Service	1
245-656	Microwave Oven	2

Select six credits from either Sociology or Psychology or from the following three courses in Economics: 320-210, 320-215 or 320-420.

ELECTIVES - 13-19 credits required

Completion of electives may be met by a minor; two concentrations of at least 15 credits each; or by selecting freely from any course work offered by the University.

DIETITIAN

COURSE DESCRIPTIONS

311-115 Introductory College Chemistry

The principles of Chemsitry presented in a descriptive framework which does not emphasize mathematical analysis and emphasizes the application of basic concepts to contemporary problems including materials, their processing, use and environmental effects.

Credi: 5

320-210 General Economics

Introduction to the basic elements of economics. Analysis of economic institutions, issues, and policy; theories of price, national income, and employment. Not open to students taking 320-210 and 320-215.

Credit: 3

326-101 Freshman English: Composition

The principles and practices of writing. Includes a documented paper. Prerequisite: Acceptable score on English Department Placement Examination or a passing grade in 326-090.

Credit: 3

326-102 Freshman English: Reading and Related Writing

Readings focused on a theme reflected in literature. Specific topics and approaches are developed by each instructor. Opportunity for the student to do responsible, independent study. Requires intensive practice in composition. Prerequisite: 326-101.

Credit: 3

387-110 Introductory Sociology

Social interaction in human groups. Relationships between the individual and the group; basic institutions; social change and current trends.

Credit: 3

391-100 Fundamentals of Speech

Techniques of effective speech based upon diagnosis of individual needs and training for the improvement of the necessary skills. Emphasis on speaker-listener relations, speech organization, voice, bodily action, language, and the development of confidence and poise.

Credit: 2

421-303 Educational Psychology

Introduction to the psychological aspects of the educative processes. Emphasis on application of basic psychological principles to teaching. Focus on learner, learning process, and the teacher as an agent for change. Prerequisite: 479-110.

Credit: 2

242-201 Teaching Techniques in Home Economics

Study of teaching techniques and skills for home economics learning experiences in relation to classroom organization and objectives.

Credit: 2

479-110 General Psychology

An introducation to the field of psychology as an academic discipline and as an applied human science. Primary emphasis is placed on the topics of scientific methodology in psychology, learning, perception, motivation, development, individual differences, mental health, cognitive behavior, the physiological basis for behavior, and the application of psychological principles to human experience.

Credit: 3

479-582 Personnel Management

Organization and coordination of personnel practices and methods. Consideration given to communication, employment, orientation and training, working conditions, supervision, performance evaluation, collective bargaining, salary administration, health and recreation.

Credit: 3

229-101 Dietetics as a Profession

Identification of the types of dietetic and food service administration programs in the United States. The role and function of staff in each. Professional literature in the field.

Credit: 1

229-212 Nutrition

Principles of human nutrition and application in the selection of food for members of the family group.

Credit: 3

229-240 Food Science

Study of physical and chemical changes as they affect the selection, preparation and service of food. Prerequisite: 311-201.

Credit: 4

229-410 Advanced Nutrition

Principles of human nutrition applied to individual, family, community, and world problems. Prerequisite: 229-212, 311-511.

Credit: 3

229-318 Meal Management Practicum

Practical applications and problem solving using principles of food economics, meal management, and food service for family-sized consumer groups. Prerequisite: 229-124 or 229-240, 229-212.

Credit: 2

229-618 Diet Therapy

Principles and methods for the use of diet as a therapeutic measure in certain pathological conditions. Prerequisite: 229-410.

Credit: 3

245-501 Food Service Administration

Organization and administration of institutional food service systems, personnel selection and training, cost control, and problems of supervision. Prerequisite: 229-318.

Credit: 3

245-211 Quantity Food Production

Concepts for quantity food production: Menu planing, recipe development, work production analysis, food and labor cost controls and introducation to productivity and work simplification concepts. Laboratory experience in food producation and service. Prerequisite: 229-124.

Credit: 3

245-222 Institutional Food Purchasing

Methods of purchasing food in large quantities. Determination of standards, specific needs and industrial offerings; formulation of specifications, buying procedures, and controls. Prerequisite: 229-124.

Credit: 2

308-132 Physiology and Anatomy

The basic concepts of physiological processes and anatomy of all organ systems of the human being based on dissection of the cat; embryological development.

Credit: 4

308-306 General Microbiology

Structure and physiology of yeasts, molds, and bacteria. Growth requirements; methods used in culture and identification; introductory studies in bacterial analysis of water and milk; other problems in sanitation and food bacteriology.

Credit: 4

311-201 Organic Chemistry Lecture

An introduction to the chemistry of carbon compounds with emphasis on the characteristic reactions of the several funcational groups. Aliphatic and aromatic compounds are studied concurrently. 311-203 normally taken concurrently with 311-201. Prerequisite: 311-115 or 311-135.

Credit: 3

311-203 Organic Chemistry Laboratory

Laboratory work normally taken concurrently with 311-201. Prerequisite: 311-201(concurrent).

Credit: 1

311-511 Biochemistry

Fundamental chemistry and metabolism of carbohydrates, lipids and proteins. Second and third order structure of proteins. Chemistry of nucleic acids. Nature and dynamics of enzymes and enzyme action. Biological oxidations. Laboratory work involving polarimentry, colorimetry, chromatography and quantative analytical procedures such as the Kjeldahl determination of protein nitrogen. Prerequisite: 311-201, 308-132.

Credit: 3

354-130 Computational Statistics

Organization and presentation of data, computation of descriptive statistics, regression and correlation theory and computation, elementary sampling theory; introduction to normal and binominal distributions, tests of hypothesis.

Credit: 2

354-230 Statistical Methods

Histograms, mean and standard deviation, combinatories, probability. Binomial, hypergeometric, normal chisquare, T and F distributions and their uses. Statistical inferences. Contingency tables, linear models, analysis of variance. Applications to quality control and management sciences. Prerequisite: Three years of high school mathematics, 355-120, or equivalent.

Credit: 3

229-638 Experimental Foods

Experimentation with selected food materials, techniques, and equipment. Opportunity for directed study in an individually chosen area. Prerequisite: 229-124 or 229-240, 311-201.

Credit: 3

229-661 Social and Cultural Aspects of Food

Social, economic, and cultural influence on man's food patterns. Prerequisite: Senior standing.

Credit: 2

600-560 Audio-Visual Communications

Methods of evaluating and using audio-visual materials effectively in teaching. Experience in operating equipment; basic technique of media preparation.

Credit: 2

160-206 Principles of Accounting

The theory of debit and credit; the underlying principles of the various accounting records; modern business papers; working sheets; the balance sheet and the income statement; the sole proprietorship, the partnership. Prerequisite: Sophomore standing.

Credit: 3

160-245 Business Data Processing

Development of a basic understanding of data processing principles; introduction to business data processing equipment and these principles on the business environment. Prerequisite: 160-206.

Credit: 3

354-140 Computer Concepts

Introduction to computing. History of computers, hardware, software, and terminology. Components and functions of computers. Programming concepts and basic applications. How to run programs written by others. Includes the writing of programs in the basic timesharing language.

Credit: 2

150-150 Industrial Organization

Survey of the basic functions and interrelationships of the major subdivisions of industrial organizations.

Credit: 2

150-530 Human Factors Engineering

A survey of the areas of man-machine interface. The physiological and psychological abilities and senses of man will be examined, together with technological advances in the interface areas of control, working performance, reliability, comfort, and safety. (The emphasis will be on effective design of man and work environment as a cybernetic system.) Prerequisite: 479-110, 354-130 or consent of instructor.

Credit: 3

229-205 Nutrition for Weight Control

Basic principles of nutrition as related to the physical stamina, mental alertness and emotional stability of individuals undergoing weight modification.

Credit: 2

229-220 Outdoor Cooking

Food preparation principles as applied to cooking and serving outdoors. Study of equipment used in outdoor food preparation. Investigation of foods for camping, backpacking, and canoe camping. Sections on preparation of wild game and on gathering and preparation of wild foods.

Credit: 1

229-260 Menu Planning and Design

The principles of menu planning, design, and producation for commerical and institutional food establishments.

Credit: 2

229-608 Advanced Meal Management Practicum

Individualized problem solving of critical incidences in meal management; variations of meal service for entertaining, meals at different economic levels, use of specialized equipment in meal preparation and service, and other interrelated problems. Prerequisite: 229-318.
Credit: 2

229-514 Food and Industry

Broad concepts of the interrelationship between properties of raw food materials and methods of processing in the food industry.
Credit: 2

229-606 Nutrition Education

Nutrition education as planned behavioral change with emphasis on problems and solutions used in instructing various populations. Identification, development, and evaluation of nutrition resources. Prerequisite: 229-212, 242-201.
Credit: 2

229-633 Maternal and Child Nutrition

Applications of basic knowledge to maternal, infant, child and adolescent nutrition. Prerequisite: 229-212 and 308-132.
Credit: 3

245-123 Essentials of Hopitality Service

An orientation to acceptable hospitality standards which are essential in the proper planning and arranging of service for public and private functions.
Credit: 1

245-312 Restaurant Operational Management

Service of special functions, banquets, receptions, etc. Emphasis is placed on planning, preparation service, menu planning, cost controls, classical buffet set-ups and personnel organization. Prerequisite: 229-124, 245-123.
Credit: 3

245-371 Food, Beverage, and Labor Cost Controls

The use of financial management techniques and systems to control food, beverage and labor costs in hospitality food service operations and clubs.
Credit: 2

245-521 Food Service Equipment

A comprehensive study of factors affecting design, selection, layout, and uses of food service equipment and facilities. A quantitative approach in optimum utilization of physical and human resources. Students plan actual layouts of different types of food facilities. Prerequisite: 130-110.
Credit:2

164

245-602 The Extended Role of School Food Service

An evaluation of the functions of school food service programs as an integral part of the school curriculum and community.

Credit: 1

245-656 Microwave Oven

Application of microwave heating principles to the prepartion and service of foods.

Credit: 2

The following is a list of High School courses that are recommended to prepare fully for the DIETITIAN program at any college or university in Wisconsin. See Appendix I for the course descriptions.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

English Language Arts

Developmental Writing

Writing Seminar

Sociology

Psychology

Advanced Algebra with Trigonometry

Computer Lit

NUTRITIONIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman Year

204-202 Biology of Cells
204-203 Biology of Organisms
226-108 General Chemistry
226-300, 301 Bio-Organic Chemistry with laboratory
246-133 Voice and Speech 1 or
246-166 Fundamentals of Interpersonal Communications
600-101 Intermediate Algebra(or advanced placement)
694-232 Nutritional Significance of Food

Sophomore Year

204-302 Microbiology
600-260 Elementary Statistics
694-302 Nutrition and Culture
694-328, 329 Nutritional Biochemsitry with laboratory
A second communications course
Selected Nutritional course

Junior Year

600-251 Computer Science
694-485,486 Advanced Human Nutrition I & II
820-102 The Behavior and Experiences of Man
900-202 Introductional to Sociological Analysis or an anthropology course
900-302 Social Stratification

Senior Year

478-402,403 Human Physiology with laboratory
694-421,422 Community Nutrition I and II
820-320 Personnel Psychology or
820-415 Organization Psychology

NUTRITIONIST

COURSE DESCRIPTIONS

204-202 Biology of Cells

An introduction to biological principles; cells as the fundamental units of living organisms, includes laboratories.

Credit: 4

204-203 Biology of Organisms

An intorduction to biological principles; structure and function of organisms and their relationship to the environment. Includes laboratories.

Credit: 4

226-108 General Chemistry

Designed as a terminal one-semester general chemistry course.

Credit: 5

226-300 Bio-Organic Chemistry

Emphasis on those aspects of the field pertinent to students planning to enter the biologically related disciplines. Includes basic organic chemistry, natural products, and molecules important to biological systems.

Credit: 3

336-301 Bio-Organic Chemistry Laboratory

Optional laboratory course to accompany 226-300. Prerequisite: credit or concurrent registration in 226-300.

Credit: 1

246-133 Voice and Speech I

Problems of voice production, voice quality, enunciation, and articulation.

Credit: 3

246-166 Fundamentals of Interpersonal Communications

Basic principles of personal interaction, as a basis of the communication process. Investigation through study, practice, and discussion includes the role of communication in interpersonal relationships, the role of identity and self-concept in communication behavior, and the roles which information reception and evaluation play in determining effectiveness of communication.

Credit: 3

600-101 Intermediate Algebra

Preparation for 600-104, for the student with a high school background of first-year algebra. Properties of the real numbers; solving linear and quadratic equations and inequalities; polynomials; fractional expressions and equations; exponents, powers and roots; systems of linear equations. Prerequisite: One year of high school algebra, and satisfactory placement score.

Credit: 3

694-232 Nutritional Significance of Food

Fundamentals of human nutrition, including functions and rquirments of essential nutrients; means of obtaining an adequate diet. Specific attention is given to the needs of infancy, adlolescence, adulthood, pregnancy and lactation, and aging. Prerequisite: One year of high school chemistry or 226-100 or 226-122.

Credit: 3

204-302 Principles of Microbiology

A study of microorganisms and their activities, included is their form, structure, reproductive physiology, metabolism, and identification; their distribution in nature and relationship to each other and to other living things. Prerequisite: 204-202 and 226-108 or 226-120 and 226-122.

Credit: 4

600-260 Elementary Statistics

Descriptive and inferential statistics; frequency distributions, graphic techniques; measures of central tendencies and of dispersion; normal distribution; probability, statistical inference, correlation, regression, analysis of variance. Prerequisite: 600-101, or two years of high school algebra and satisfactory placement score.

Credit: 3

694-302 Nutrition and Culture

Effects of environment and culture on food habits in historical perspective. Role of food in health and disease as related to humans and the biosphere. Prerequisite: 694-232 or cons instr.

Credit: 3

694-328 Principles of Nutritional Biochemistry

Comprehensive survey of metabolism and physiological chemical functions in living organisms. Prerequisite: 226-300 and 301 or 303.

Credit: 3

694-329 Nutritional Biochemistry Laboratory

An optional basic laboratory course to accompany 694-328. Prerequisite: An organic chemistry laboratory course and credit or concurrent registration in 694-328.

Credit: 1

600-251 Computer Science

The structure, operations, and programming of a computer; application of data processing to students' areas of interest; logic decision techniques as applied to systems and procedures. Examples are selected approriated to students needs. Prerequisite: 600-152

Credit: 3

694-485 486 Advanced Human Nutrition 3

Physiological and biochemical principles of nutrition, fundamental concepts of human nutrtion and nutritional diseases. Prerequisite: 204-202 and 203; 226-330 or 694-328.

Credit: 3

820-202 Introduction to Social Psychology

Introduction to social psychology, including attitude formation and attitude change; group processes, communication, roles, multiple group membership, social prejudice. Prerequisite: soph student.

Credit: 3

900-202 Introduction to Sociological Analysis

Introduction to major sociological theories and their application to contemporary problems of society. Prerequisite: soph student.

Credit: 3

900-302 Social Stratification

Occupation, class, and status as determinants of group interests, ideologies, and struggles; selected international comparisons. Prerequisite: 900-202 or cons instructor.

Credit: 3

478-402 Human Physiology

The functions of the major organs and organ systems of humans other than the central nervous system and the special senses. Prerequisite: 204-202 and 203 and 226-120, 122, 123, 125, or equivalent.

Credit: 3

478-403 Human Physiology Laboratory

Laboratory exercises in conjunction with 478-402 with special emphasis on experimental techniques and fundamentals of research. Prerequisite: 478-402 or concurrent registration.

Credit: 2

694-421 Community Nutrition I

Nutritional problems of the individual and family within the context of the larger community - world, nation, region, and state. Offered in alternate years. Prerequisite: 694-302.

Credit: 2

820-320 Personnel Psychology

Selection, classification, and placement procedures; techniques of employment interviewing, rating methods, industrial tests (mechanical, clerical, trade), job analysis, and occupational description; lecture and laboratory work. Prerequisite: Junior student.

Credit: 3

820-415 Organization Psychology

Relation between social structure and psychological behavior, problems of bureaucracy, leadership styles, communication networks, decision-making processes group productivity. Prerequisite: Senior Student.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the NUTRITIONIST program at any college or university in Wisconsin. See Appendix I for the course descriptions.

- Biology
- Advance Biology
- Chemistry
- Advanced Chemistry
- English Language Arts
- Developmental Writing
- Writing Seminar
- Advanced Algebra with Trigonometry *
- Advanced Algebra *
- Psychology
- Sociology
- Computer Lit

*In lieu of Advanced Algebra with Trigonometry you may elect to take Advanced Algebra.

ENVIRONMENTAL and PUBLIC HEALTH SERVICES

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ENVIRONMENTAL HEALTH TECHNOLOGIST

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

Course Outline

First Year First Semester	Credits
Introduction to Environmental Health 101	3
Environmental Biology 102	3
Communication Skills 1 151	3
Technical Mathematics 1 151	4
Chemical Science 155	4
Physical Education 101	1
Orientation 100	0
	18
Second Semester	
Environmental Sanitation 1 103	3
Communication Skills 2 152	3
Mibrobiology 109	4
American Institutions 153	3
Elective	3
	16
Second Year First Semester	
Environmental Sanitation 2 104	4
Water and Wastewater Technology 111	4
Air Pollution Technology 115	4
Psychology of Human Relations 151	3
	15
Second Semester	
Food and Dairy Sanitation 119	4
Field Experience 127	5
Business and Industrial Relations 155	3
Elective	3
	15

NOTE - Select electives from other departments offering Associate Degree Courses. See the guidance counselor for approval of the pattern of elctives selected.

ENVIRONMENTAL HEALTH TECHNOLOGIST

COURSE DESCRIPTIONS

101 Introduction to Environmental Health

The need for people in environmental technology is constantly growing. This introductory course is designed to give people interested in this field an insight into the problems and rewards it offers. It includes a study of the history, development, and philosophy of environmental health. Students are also introduced to the basic environmental health literature, vocational opportunites, the role of the technician, communicable diseases, and vital statistics.

Credit: 3

102 Environmental Biology

A course to acquaint the student with the fundamentals of biology pertinent to environmental health. The classification, nature, and behavior of biological organisms are basic to the operation of water and wastewater treatment plants, stream sanitation, and environmental disease prevention and control. The subject matter, presented in a natural sequence, includes the sanitary significance of each group of organisms. Specific laboratory procedures and field sampling techniques are included.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

151 Technical Mathematics 1

The student masters the basic mathematics topics needed by technicians. Technical Mathematics 1 includes these topics: signed numbers, operations with fractions, non-fractional and fractional equations, graphing, formula rearrangement, systems of two equations, formula derivation, number system, powers of ten, estimation, slide rule calculations, ratio and proportion, percent, and common logarithms. Prerequisite: One year of high school algebra.

Credit: 4

155 Chemical Science

A study is made of the basic concepts of measurement of matter, the properties and classification of matter, the states of matter, solutions, electrochemistry, along with a survey of organic chemistry and environmental chemistry. In the laboratory, practical applications of these basic concepts to everyday problems will be made.

Credit: 4

101 Physical Education

This coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. The student furnishes his own personal equipment.

Credit: 1

100 Orientation

Designed to assist students in making an analysis of interests, abilities, and aptitudes for the prupose of confirming their vocational choice or of finding one that is more sutiable. Extensive information is given regarding the student's selected educational and occupational fields. Students are acquainted with the many and varied educational opportunities at Milwaukee Area Technical College and are assisted in making satisfactory adjustment to their new school environment.

Credit: 0

103 Environmental Sanitation 1

The environmental health problems of the community are studied. Included is a study of private water supplies and wastewater disposal methods. A study is also made of solid waste disposal, soil classification and analysis, and swimming pool and beach sanitation. Prerequisite: Env H T 101

Credit: 3

152 Communications Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

109 Microbiology

Basic facts of microbiology are presented, and a general understanding is gained of various laboratory methods used to study microorganisms. Emphasis is placed on the effect of organisms on the body, immunology, and the control of microorganisms. Prerequisite: One year of biology.

Credit: 4

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology, and government. Subject matter is flexible and may be altered as societal change makes it necessary.

Credit: 3

104 Environmental Sanitation 2

This continuation of EnvH T 103 deals with problems in housing, institutional sanitation, accident prevention, insect and rodent control, and other related environmental health problems. Prerequisite: EnvH t 103.

Credit: 4

111 Water and Wastewater Technology

A study is made of laboratory procedures as applied to water and wastewater analysis. The course is designed to develop an understanding of the theory and performance of laboratory techniques used to evaluate the quality of water and the effectiveness of water and wastewater treatment methods. Water and wastewater treatment plant operations are studied, including the basic statistics as used in water pollution work.

Credit: 4

115 Air Pollution Technology

This study of the effects of air pollution includes the types of air pollution their sources, and their prevention and control. The various air pollution sampling techniques and air analysis methods are performed by the student. Classwork is supplemented with field trips to observe control equipment.

Credit: 4

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

119 Food and Dairy Sanitation

This course covers the application of sanitary principles in milk and food processing. It includes preservation, distribution, and serving of food. Also covered are the microbiology of food-borne diseases; kitchen equipment and design; and milk plant operation, equipment, and testing. Lectures are supplemented with laboratory work and field trips. Prerequisite: Nat Sci 109.

Credit: 4

127 Field Experience

On-the-job experience is gained in a local health department, wastewater treatment plant, industrial laboratory, or related institution. Students receive training in the special areas of food and milk, water and sewage, housing and rodent control, air pollution, and other environmental work areas. Prerequisite: Departmental approval.

Credit: 5

155 Business and Industrial Relations

An anaylsis of the place of labor and business management in the modern industrial economy of the United States, with some emphasis on understanding the nature and overall dimensions of the American economy. Topics include the problems of labor in an industrial environment, the development of American industry and of the American labor movement, unemployment, the level of wages and prices, and a consideration of present problems in this area.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the ENVIRONMENTAL HEALTH TECHNOLOGIST program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

Biology

Chemistry

Advanced Algebra

English Language Arts

Developmental Writing

Psychology

Environmental Science

PUBLIC HEALTH WORKER

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman Year Fall Semester	Credit
English Composition(38-101)	3
Mathematics (67-103 or 67-108)	3-5
Biology (26-107)	5
Chemistry (32-105)	5
Spring Semester	
Social Sci. or Humanities elective	3
Mathematics (67-104 or 67-108)	3-5
Chemistry (32-106)	5
Biology (26-121 or 26-126)	5
Sophomore Year	
Social Sci. or Humanities elective	3
Physics (82-101 or 82-107)	5
Biology (26-343)	4
Organic Chem. (32-213)	4
Phy Ed	1
Elective	3
Social Sci. or Humanities	3
Physics (82 102 or 82 108)	5
Organic Chem (32 314)	4
Bacteriology (26 309)	5
Junior Year	
Food Microbiol (26-339)	3
Medical Bacteriol. (26-312 and 26-313)	4
Mycology (26-321)	3
Microbial Ecology (26-327)	4
Social Sci. or Humanities elective(or English 38-502)	3
Immunology and Serology (26-341)	4
Parasitology (26-354)	3
Virology (26-315)	5
Molecular Biol. (26-372)	3
Social Sci. or Humanities elective(or Elementary Public Health)(26-214)	3-6

Senior Year	Credit
Microbial Physiol (26-450)	5
Public Health & Sanitation (26-460)	4
Biochemistry (32-302)	4
Radiobiology (26-432)	3
Electives	12-14
Phy Ed	1
Quant. Analysis (32-221)	5

PUBLIC HEALTH WORKER

COURSE DESCRIPTIONS

38-101 College English I

A basic course in college reading and writing; designed to develop language skills. Emphasis on skills in composing expository essays and analyzing purpose and structure in readings.

Credit: 3

67-103 Introdcution to College Alegebra I

The structure of the real numbers, open sentences in one variable (equalities and inequalities), systems of linear open sentences, functions and graphs, polynomials and factoring.

Credit: 3

67-108 College Algebra and Trigonometry

A functional approach to college algebra and trigonometry. Polynomial, exponential, logarithmic, circular, and trigonometric functions. Students may not receive credit from both 67 104 and 67 108. Prerequisite: 67 103 or recommendation of Mathematics Department.

Credit: 5

26-107 Principles of Modern Biology

Major biological concepts from molecular to population levels. Laboratory experiments demonstrate analytical and descriptive approaches to biology and involve collection and interpretation of experimental data. Open to majors, minors, and those allied with fields specifying a major's course. Prerequisite: Previous or concurrent enrollment in general chemistry recommended.

Credit: 5

32-105 General Chemistry

Fundamental laws and concepts of chemistry: atomic theory, atomic and electronic structure, chemical bonding, mole concept, nomenclature, stoichiometry, states of matter, formulas and equations, solutions and colloids. A foundation course with greater emphasis on the theoretical and mathematical aspects of chemistry than in 32 101. Designed for students taking chemistry beyond the first year course. Prerequisite: High school chemistry (or consent of department) and credits or concurrent enrollment in mathematics 67 103 or 67 108.

Credit: 5

67-104 Introduction to College Algebra II

Continuation of functions and graphs including logarithms, polynomials, induction, progressions, matrices and determinants, permutations, combinations, probability. Students may not receive credit for both 67 104 and 67 108. Prerequisite 67 103.

Credit: 3

32-106 General Chemistry with Qualitative Analysis

A continuation of 32 105: kinetics and chemical equilibrium, thermochemistry, electrochemistry, nuclear chemistry, molecular structure, chemistry of metals and selected non-metals. Laboratory to include qualitative analysis. Together with 32 105, constitutes the foundation course for further course work in chemistry. Prerequisite: 32 105.

Credit: 5

26-121 Survey of Plant Kingdom

A phylogenetic study of the plant kingdom including all major groups of living and fossil plants, the distinguishing morphological feature of the major taxa and the life cycles of representative organisms with evolutionary considerations. Prerequisites: 26 101 or 26 107.

Credit: 5

81-101 General Physics

A survey of mechanics and properities of matter. Recommended for liberal arts majors. Not acceptable as a prerequisite for pre-engineering programs or advanced physics courses. Prerequisite: some experience with algebra and trigonometry. Self-paced version available each semester and summer. Credit may not be earned for both 82 101 and 82 107.

Credit: 4

82-107 General Physics

A survey of mechanics and properties of matter. Recommended for liberal arts majors and pre-professionals. Not recommended for physics majors and minors and pre-engineers. Students having concurrent registration in Mathematics 67 171 should take Physics 82 109. Prerequisite: Useable skills in algebra and basic trigonometry. Credit may not be earned for both 82 107 and 82 101. Self-paced version available each semester and summer.

Credit: 5

26-343 Genetics - Lecutre and Laboratory

A study of inheritance and variation at the molecular, cellular, organismic and population levels. Prerequisites: One semester of biology.

26-309 Bacteriology

Preparation of culture media; isolation and propagation of bacteria, molds, and yeasts; morphological characteristics; physiology; relationships to mankind; examination of food, milk, and water; identification of unknowns. Prerequisite: 26 107 and one year of general chemistry with laboratory.
Credit: 5

26-339 Food Microbiology

Microorganisms important in food; special reference to preservation, fermentation and spoilage processes and their control. Prerequisite: 26 309.
Credit: 3

26-312 Medical Bacteriology and Epidemiology

Bacterial pathogens and their relationships to diseases; prevention and control of infectious diseases. Prerequisite: 26 309.
Credit: 2

26-321 Mycology

A study of the fungi; characteristics, physiology; habits and laboratory identification of molds, yeasts, mushrooms and related organisms. Prerequisites: 26 107 or 26 121.
Credit: 3

26-327 Microbioal Ecology

A study of the activities of microorganisms in a variety of natural habitats, and their relevance to the overall quality of the environment. Emphasis will be placed on specific processes.
Credit: 4

26-341 Immunology and Serology

Principles of immunity and serology; preparation of vaccines and antisera. Prerequisite: 26 312 and 26 313.
Credit: 4

26-354 Parasitology

General survey of the ecto and endoparasites from the standpoint of parasite host relationship, identification, life histories, and physiology. Prerequisite: 26 107, 26 126 or 26 127.
Credit: 3

26-315 Virology

Biological, physical and chemical studies of bacterial, plant and animal viruses, and study of virus-host relationships. Prerequisite: 26 309.
Credit: 5

26-372 Molecular Biology

An examination of fundamental biological processes with emphasis on events and interactions at the molecular level, and applications of molecular biology in currently active areas of research. Prerequisite: Biology 26 107; Organic Chemistry (32 313 or 32 316) or permission of instructor; Bacteriology (26 309) suggested, but not required.

Credit: 3

26-214 Elementary Public Health

Consideration of basic health problems and description of organization and administration of official and voluntary health agencies; principles of prevention in the occurrence and transmission of diseases. Approved as a non-laboratory, general education course to count as 3 free elective credits in the social science area.

Credit: 3

26-450 Microbial Physiology

Physiological and metabolic processes of bacteria with emphasis on growth, nutrition, synthesis of cellular constituents and energy yielding processes. Prerequisite: 26 309; recommended 32 302 (chemistry).

Credit: 5

26-406 Public Health and Sanitation

Disease transmission, public health measures for control and prevention of diseases; sanitary standards inspection and processing of industrial and human wastes. Prerequisite: 26 309, 26 312 and 26 313.

Credit: 4

32-302 Biochemistry

Chemistry of carbohydrates, lipids, proteins and nucleic acids. Introduction to metabolism and biosynthesis of these same classes of compounds. Introduction into photosynthesis, enzyme mechanisms, enzyme kinetics, biochemical energetics and metabolic control mechanisms. Basic techniques used in modern biochemical laboratory including electrophoresis, chromatography (thin-layer, paper, column and gas), polarimetry, and spectrophotometry (I.R., U.V. and visible). Prerequisite: 32 335 (32 314 and 32 318) with a grade of C or better or consent of instructor.

Credit: 4

26-432 Radiobiology

Nature of ionizing radiation and decay of radioisotopes. Interaction of various kinds of natural and artificial radiation with matter particularly biological, and use of radiotracers in biological measurements. Laboratory experiments on safety techniques, monitoring and dosimetry, decontamination, quantitation of tracers, and effects of radiation. Prerequisite: A year of chemistry or physics with laboratory.

Credit: 3

32-221 Quantitative Analysis

Emphasis on ionic solution equilibria as applied to analytical chemistry. Specifically, statistical analysis of data, theoretical principles of solubility, acid-base, redox and complex equilibria discussed stressing calculations involving system constants and species concentrations. Laboratory techniques to include gravimetric, volumetric, potentiometric and colorimetric methods with stress on quantitative determinations of inorganic and organic species and system constants. Prerequisite: 32 106 or 32 109 with a grade of C or better or consent of instructor.

Credit: 5

The following is a list of high school courses that are recommended to prepare fully for the PUBLIC HEALTH WORKER program at any college or university in Wisconsin. See Appendix I for the course descriptions.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

Physics

Advanced Algebra with Trigonometry

English Language Arts

Developmental Writing

Writing Seminar

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SANITARIAN

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

I. Core courses in Chemistry		Credits
103 and 104	General Chemistry	10
213	Quantitative Analysis	5
321, 322, 323	Organic Chemistry	8
452 and 453	Biochemistry	5
		28

II. Core courses in Biology		
104	General Zoology	4
105	Animal Kingdom	4
106	General Botany	4
311	General Entomology	4
351 and 453	Gen and Adv Bact	7
352	Parasitology	4
		27

III. Core courses in Environmental and Public Health		
210	Intro to Envir Health	3
215	Public Health Programs	3
420	Prin of Engr Graphics	3
430	Field Practice in Sanitation	6
440	Food and Water Sanitation	4
450	Epidemiology	3
460	Occupational Health	3
470	Public Health Admin	3
480	Health Regulations, Codes and Standards	3
		31

IV. Other requirements	
Phys 211 and 212	8
Math 111 and 245	7
Bsad 305	3
	18

SANITARIAN

COURSE DESCRIPTIONS

103 General Chemistry

Proficiency with algebraic operations is expected. Principles of chemistry. Laboratory work is quantitative with unknowns for most experiments.

Credit: 5

101 General Chemistry

Prerequisite: Chem 103 or 111. Continuation of Chem 103.

Credit: 5

213 Quantitative Analysis

Prerequisite: Chem 103 and 104 or equivalent with a grade of C or better, or consent of instructor. Theory, applications and calculations involved in analytical methods of analysis.

Credit: 5

321 Organic Chemistry

Prerequisite: Grade of C or better in Chem 104 or 212 or equivalent. Reactions of common classes of organic compounds. Structure, mechanism and resonance theory.

Credit: 3

322 Laboratory in Organic Chemistry

Prerequisite: Chem 321 or concurrent registration in Chem 321. Techniques in the preparation, isolation, purification and analysis of organic compounds. Some physical-organic techniques.

Credit: 2

323 Organic Chemistry

Prerequisite: Chem 321 or 322 or concurrent registration in Chem 322. A continuation of Chem 321.

Credit: 3

452/652 Biochemistry

Prerequisite: Chem 323 or concurrent registration. Chemistry of the important constituents of living matter: proteins, carbohydrates, lipids and nucleic acids.

Credit: 3

453/653 Biochemical Methods

Prerequisite: Chem 212 or 213, 452/652 (or concurrent registration). Study of experimental methods of analysis in biochemistry and their use in structure determination and metabolic interconversions.

Credit: 2

104 General Zoology

The anatomy, physiology, embryology, and heredity of animals. With emphasis upon vertebrates, especially man, pig, and frog.

Credit: 4

105 Animal Kingdom

Prerequisite: Biol 104. Representative animals of major phyla, stressing diversity, adaption, ecology, life history, and relationships.

Credit: 4

106 General Botany

The structure, physiology and reproduction of flowering plants.

Credit: 4

311/511 General Entomology

Prerequisite: Biol 104 and 105. Structure, physiology, classification and natural history of insects, including both mature and immature forms.

Credit: 4

453/653 Advanced General Bacteriology

Prerequisite: Biol 351/551. Advanced studies of cultural, morphological, and physiological characteristics of selected groups.

Credit: 3

352/552 Parasitology

Prerequisite: Biol 104 and 105. A survey of protozoan, helminth, and arthropod parasites, emphasizing those affecting man, host-parasite relationships, and vectors.

Credit: 4

210 Introduction to Environmental Health

Prerequisite: Biol 104 and 105, Chem 103 and 104. Health-oriented problems in the environment with attention directed to air and water pollution, solid waste, housing, occupational health and safety, food sanitation, animal zoonoses, ecology of health and disease, radiological health, and energy.

Credit: 3

215 Public Health Programs

Prerequisite: Enph 210. Voluntary and involuntary health programs on the local, state, federal, and world level. Emphasis given to environmental health programs and their incorporation into the total health system.

Credit: 3

420 Principles of Engineering Graphics

Prerequisite: Math 111 or equivalent. Develops a working knowledge of the "language of the blueprint" for technologists, inspectors, supervisors, and others in public health.

Credit: 3

430 Field Practice in Sanitation

Prerequisite: one year of bacteriology and senior st. A full-time ten-week internship in a certified health-related agency.

Credit: 6

450/650 Epidermiology

Prerequisite: permission of instructor. Methods used to determine prevalence and incidence of disease in the population. Factors and microorganisms that cause, contribute to, or prevent disease.

Credit: 3

460 Occupational Health

Prerequisite: permission of instructor and senior st. Health conditions in the working environment and the protection of workers as a special aspect of the general health protection of the community population.

Credit: 3

470 Public Health Administration

Prerequisite: senior st. and Enph 430 or equivalent. Public health administrative organization; federal, state, and county public health regulations, organization, advisory functions, enforcement procedures and educational services.

Credit: 3

480 Health Regulations, Codes, and Standards

Prerequisite: by permission of instructor only. A survey and evaluation of state and federal health-related regulations, codes and standards.

Credit: 3

211 General Physics

Fundamental principles of mechanics, heat and sound, with applications designed for biological science majors and others who desire a one-year non-calculus, terminal course in physics. GS-II

Credit: 4

212 General Physics

A continuation of Phys 211 through electricity, light, and modern physics. Prerequisite: Phys 211. GS-II

Credit: 4

245 Introduction to Statistics

Prerequisite: one year of high school algebra. May not be taken for credit after or concurrently with Math 347 or Psyc 265. Basic statistical analysis, including descriptive statistics, probability, confidence intervals, and hypothesis testing. GS-I

Credit: 3

111 A Short Course in Calculus

Prerequisite: Math 110 or three years of above-average work in college preparatory mathematics and a suitable score on the Mathematics Placement Test. May not be taken for credit after or concurrently with Math 114. Primarily for students in biology, business, economics, psychology, and sociology. Functions, limits, continuity, derivatives, integrals, and applications. GS-I

Credit: 4

305 Business Law I

Prerequisite: Junior st. Principles of American Legal System, law of contracts, agency, negotiable instruments, and bailments.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the SANITARIAN program at any college or university in Wisconsin. See Appendix I for the course descriptions.

- English Language Arts
- Developmental Writing
- Writing Seminar
- Biology
- Advanced Biology
- Chemistry
- Advanced Chemistry
- Environmental Science
- Physics
- Advanced Algebra with Trigonometry
- Business Law

WATER and WASTEWATER TECHNOLOGIST

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester	Credit
EnvH 101 Introduction to Environmental Health	3
EnvH 102 Environmental Biology	3
EnvH 143 Water and Wastewater Plant Management	3
Eng 151 Communication Skills I	3
NatSci 155 Chemical Science	4
	16
Second Semester	
EnvH 103 Environmental Sanitation I	3
EnvH 140 Water and Wastewater Plant Processes	3
Eng 152 Communication Skills 2	3
Math 151 Technical Mathematics 1	4
PhyEd 102 Physical Education	1
NatSci 109 Microbiology	4
	18
Second Year First Semester	
EnvH 104 Environmental Sanitation 4	4
EnvH 111 Water and Wastewater Analysis	4
EnvH 145 Treatment Plant Operation and Maintenance 1	2
SocSci 151 Psychology of Human Relations	3
Elective	2
	15
Second Semester	
EnvH 127 Field Experience	5
EnvH 146 Treatment Plant Operation and Maintenance 2	2
SocSci 153 American Institutions	3
SocSci 155 Business and Industrial Relations	3
Elective	2
	15

WATER and WASTEWATER TECHNOLOGIST

COURSE DESCRIPTIONS

101 Introduction to Environmental Health

The need for people in environmental technology is constantly growing. This introductory course is designed to give people interested in this field an insight into the problems and rewards it offers. It includes a study of the history, development, and philosophy of environmental health. Students are also introduced to the basic environmental health literature, vocational opportunities, the role of the technician, communicable diseases, and vital statistics.

Credit: 3

102 Environmental Biology

A course to acquaint the student with the fundamentals of biology pertinent to environmental health. The classification, nature, and behavior of biological organisms are basic to the operation of water and wastewater treatment plants, stream sanitation, and environmental disease prevention and control. The subject matter, presented in a natural sequence, includes the sanitary significance of each group of organisms. Specific laboratory procedures and field sampling techniques are included.

Credit: 3

143 Water and Wastewater Plant Management

Instruction is provided in basic fundamentals of managing a water or wastewater treatment facility. Instruction covers the relationships among different processes and equipment, record keeping, and cost estimating, as well as occupational safety and health hazards. Procedures for various management procedures and process control problems.

Credit: 3

151 Communication Skills 1

Designed to improve the sutdent's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

155 Chemical Science

A study is made of the basic concepts of measurement of matter, the properties and classification of matter, the states of matter, solutions, and electrochemistry, along with a survey of organic chemistry and environmental chemistry. In the laboratory, practical applications of these basic concepts to everyday problems will be made.

Credit: 4

103 Environmental Sanitation 1

The environmental health problems of the community are studied. Included is a study of private water supplies and wastewater disposal methods. A study is also made of solid waste disposal, soil classification and analysis, and swimming pool and beach sanitation. Prerequisite: EnvH 101.

Credit: 3

104 Water and Wastewater Plant Processes

This course familiarizes the student with basic engineering aspects of the design and operation of water purification plants and wastewater treatment plants. Several visits to local water and wastewater treatment facilities are included. Critical evaluations are made of specific processes used to treat water and wastewater. Industrial wastewater problems and health regulations are also emphasized.

Credit: 3

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151, or 201 with the permission of the department.

Credit: 3

151 Technical Mathematics 1

The student masters the basic mathematics topics needed by technicians. Technical Mathematics 1 includes these topics: signed numbers, operations with fractions, non-fractional and fractional equaptions, graphing, formula rearrangement, systems of two equations, formula derivation, number system, powers of ten, estimation, slide rule calculations, ratio and proportion, percent and comon logarithms. Prerequisite: One year of high school algebra.

Credit: 4

109 Microbiology

Basic facts of microbiology are presented, and a general understanding is gained of various laboratory methods used to study microorganisms. Emphasis is placed on the effect of organisms on the body, immunology, and the control of microorganisms. Prerequisite: One year of biology.

Credit: 4

102 Physical Education

This coeducational course includes lectures, demonstrations, films, tapes, and slides of various physical activities, and a survey of off-the-job leisure time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The course instructs the student to select leisure-time activities and attempts to encourage the solution of individual health problems. (Available only at regional campus centers; not offered at the Milwaukee Campus).

Credit: 1

104 Environmental Sanitation 2

This continuation of EnvH 103 deals with problems in housing, institutional sanitation, accident prevention, insect and rodent control, and other related environmental health problems. Prerequisite: EnvH 103.

Credit: 4

111 Water and Wastewater Analysis

A study is made of laboratory procedures as applied to water and wastewater analysis. The course is designed to develop an understanding of the theory and performance of laboratory techniques used to evaluate the quality of water and the effectiveness of water and wastewater treatment methods. Water and wastewater treatment plant operations are studied, including the basic statistics as used in water pollution work.

Credit: 4

145 Treatment Plant Operation and Maintenance 1

The basic operational procedures and facilities used in public water supply treatment and wastewater treatment are studied. Included are various methods of establishing and maintaining hydraulic flow, techniques for chemical treatment, and emphasis on applications to remove phosphorous.

Credit: 2

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

127 Field Experience

On-the-job experience is gained in a local health department, wastewater treatment plant, industrial laboratory, or related institution. Students receive training in the special areas of food and milk, water and sewage, housing and rodent control, air pollution, and other environmental work areas. Prerequisite: Departmental approval.

Credit: 5

146 Treatment Plant Operation and Maintenance 2

The basic operational procedures for handling sludge in wastewater treatment plants are studied. This includes common operational problems encountered in the operation of digesters, sludge thickeners, sludge pumps, and filtration systems. Major emphasis is placed on proper maintenance, remedial measures, and process problems.

Credit: 2

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology, and government. Subject matter is flexible and may be altered as societal change makes it necessary.
Credit: 3

155 Business and Industrial Relations

An analysis of the place of labor and business management in the modern industrial economy of the United States, with some emphasis on understanding the nature and overall dimensions of the American economy. Topics include the problems of labor in an industrial environment, the development of American industry and of the American labor movement, unemployment, the level of wages and prices, and a consideration of present problems in this area.
Credit: 3

The following is a list of High School courses that are recommended to prepare fully for the WATER and WASTEWATER TECHNOLOGIST program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

Biology

Chemistry

Advanced Algebra

English Language Arts

Developmental Writing

Writing Seminar

Economics

Psychology

HEALTH EDUCATION

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COMMUNITY HEALTH EDUCATOR

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is inperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

	Credits
I. English (two semesters)	
A. Engl 110, College English I	3
B. Engl 301, Advanced Composition	3
or	
Engl 303, College English II	3
or	
Engl 305, Creative Writing	3
Exemptions from I.B.	
1. Students who qualify with a grade of "B" or better in English 110.	
2. Students who pass the Advanced Placement Examination and receive credit for English 110.	
II. Speech (one semester)	
Sp Th 101, Principles of Effective Speaking	2
III. Science-Mathematics (three semesters)	
Not more than two semesters may be taken in the same department. At lease one semester of laboratory science must be included.	
A. Biology	
Biol 100, Principles of Biology	4
This is an introductory course. Students wishing to take a second semester of biology to meet requirements in Basic Studies may choose from:	
Biol 201, Human Biology	4
Biol 204, Plant Biology	4
Biol 211, Vertebrate Zoology	4
Biol 212, Invertebrate Zoology	4
B. Chemistry	
Chem 100, Contemp. Chemistry, or 101-104 or 103-104, General Chem	4-4
C. Geography/Earth Science	
Geog 121, Weather and Climate	4
Geog 122, Maps and Landforms	4
D. Physics	
Phys 103-104, Elementary Physics I and II	4-4
Phys 201-202, General Physics Theory I and II	4-4
(Phys 201 requires background in calculus or concurrent registration in Math 207.)	
Phys 155-156, Descriptive Astronomy I and II	4-4
E. Mathematics	
Math 107, Contemporary Mathematics	4
Math 205, Elementary Statistics	4

	Credits
F. Computer Science	
CptS 110, Introd. to Computer Science	4
IV. History-Social Science (four semesters)	12
The four semesters required must include two semesters of history and two semesters of social science	
A. History (two semesters in the same course)	
Hist 101-102, World Civilizations	3-3
or	
Hist 201-101, U.S. History I and II	3-3
B. Social Science (two semesters)	
Anth 100, Introd. to Anthropology	3
Econ 180, Principles of Economics I	3
MCm 201, Introduction to Mass Communication	3
PolS 101, American National Government	3
Soci 100, Introductory Sociology	3
Econ 190, Principles of Economics II	3
PolS 102, State and Local Government	3
Psyc 201, General Psychology	3
Soci 220, Social Problems	3
V. Humanities (four semesters)	9-14
The required four semesters must be taken in at least three departments and must include at least one semester of literature.	
A. Art 102, Art Appreciation	2
B. Musi 105, Music Appreciation	2
C. PE 104, Dance Appreciation	2
D. SpTh 111, Theatre Appreciation	2
E. Engl 201-202, American Literature I and II	3-3
Engl 203-204, English Literature I and II	3-3
Engl 205-206, World Literature I and II	3-3
Engl 210, Literature of Black America	3
Engl 215, Afro-American Authors	3
F. Phil 100, Introduction to Philosophy	3
G. Foreign Language (one department)	4-4
101-102, Elementary French, German or Spanish (4 cr. per semester)	
or	
201-202, Intermediate French, German or Spanish (4 cr. per semester)	
VI. Physical Activities (two semesters)	2
P.E. 100, Physical Activities	1-1
VII. Exploration (one semester)	2-5
A. JSED 100, Contemporary American Education	3
B. HED 101, Personal Health	2

Requirements in Health Education:

HEd 101 Personal Health	2
HEd 200 School Health Programs	3
HEd 240 Community Health Education	2
HEd 331 Nutrition Education	3
HEd 333 Drugs and Alcohol	3

	Credits
HEd 335 Health and Human Ecology	2
HEd 340 Community Health Problems	3
HEd 345 Emotional Health in the Classroom	3
HEd 420 Principles of Sex Education	3
HEd 424 Consumer Health	3
HEd 440 Community Health Field Resources	3
HEd 452 Health Aspects of Aging	3
HEd 490 Community Health Preceptorship	10
Requirements in Biology:	
Biol 231 Bacteriology	4
Biol 441 Pathogenic Bacteriology	5
Requirements in Mass Communications:	
MCm 201 Introduction to Mass Communications	3
MCm 361 Public Relations	2
Requirements in Mathematics:	
Math 205 Elementary Statistics	4
Requirements in Sociology-Social Work:	
Soci 220 Social Problems	3
SocW 200 Introduction to Social Work	3
Requirements in Speech:	
SpTh 204 Introduction to Discussion	3
SpTh 305 Public Speaking	3
Requirements in Physical Education:	
PE 205 Human Anatomy-Physiology	3
PE 206 Human Anatomy-Physiology	3
Recommended electives	6-11

COMMUNITY HEALTH EDUCATOR

COURSE DESCRIPTIONS

110 College English I

An introductory course in composition.

Credit: 3

301 Advanced Composition

Emphasis on the writing of judicial criticism of short stories, poems, and plays. Some attention given to original writing. Intended primarily for English majors and minors. Prerequisites: Six credits in 200 level English courses, or consent of instructor.

Credit: 3

303 College English II

An advanced course devoted to the theory and practice of expository writing and related rhetorical forms, especially persuasion and argument. Emphasis placed on coherent organization, clear and forceful phrasing, logical thinking and other aspects of effective communication. Required of all students for graduation except those who take English 301 or 305 and those exempted on the basis of achievement in English 110. Prerequisites: Engl 110 and at least Sophmore standing.

Credit: 3

305 Creative Writing

The writing of poetry, fiction, drama. Provides students who have some ability in creative writing with the opportunity to profit from the comments of other such students and from the supervision and suggestions of an experienced writer.

Credit: 3

110 Principles of Effective Speaking

Consideration of the process of oral communication and principles of speech with application of these basic principles in selected speaking projects.

Credit: 2

110 Principles of Biology

A foundation course dealing with the living system primarily at the cellular level. Chemical composition, structure, metabolism, reproduction, inheritance, ecology, and evolution are stressed.

Credit: 4

201 Human Biology

Biological principles and concepts relevant to the human body, society and the environment. Prerequisite: Biol 100. Not applicable for a major or minor in Biology. Credit: 4

204 Plant Biology

An investigation of the general structure and morphology of plants, and an inquiry into their growth and development. Prerequisite: Biol 100. Credit: 4

211 Vertebrate Zoology

Anatomy, physiology, and evolution of the vertebrates. White rat as the basic study animal, supplemented by other forms as needed. Prerequisite: Biol 100. Credit: 4

212 Invertebrate Zoology

Primarily, a consideration of animals from the protozoan level through the echinoderm. The emphasis is on classification, life cycles, and evolutionary relationships. Prerequisite: Biol 100. Credit: 4

100 Contemporary Chemistry

A terminal, non-mathematical course focusing on applied chemistry. Emphasis is placed on selected topics in organic chemistry, biochemistry, and nuclear chemistry that are pertinent to today's problems. Credit: 4

101 General Chemistry I

An introduction to chemistry, including atomic structure, the chemical bond, the principles of chemical change, states of matter, solutions and nuclear chemistry. Credit: 4

103 General Chemistry I

For selected students with good backgrounds in chemistry and mathematics. Topics treated in greater depth than in Chem 101. Credit: 4

104 General Chemistry II

A second semester general chemistry course introducing the topics of equilibrium, kinetics, thermodynamics, electrochemistry and descriptive chemistry. Qualitative analysis is included in the laboratory portion of this course. Prerequisite: Chem 101 or 103

Credit: 4

121 Weather and Climate

A general introduction to basic climatology including an analysis of the elements of weather and climate with their associated world patterns. Attention is given to the classification of North American air masses and interpretation of daily weather maps.

Credit: 4

122 Maps and Landforms

Introduction to map reading and the geography of landforms. Includes elements of location and map use and a study of earth materials and landforms. Laboratory experience with topographic maps and common rocks and minerals. May be taken separately or in conjunction with Geog/Earth Sci 121 to gain an introduction to the physical earth as the home of man.

Credit: 4

103 Elementary Physics I

Mechanics, properties of matter. Physical measurement, classical study of force, torque, dynamics, energy, machines, fluids, gases, liquids, solids, thermodynamics. Applications from allied health and engineering fields. Prerequisite: Ability to solve simple algebraic equations.

Credit: 4

104 Elementary Physics II

Wave phenomena, electricity and magnetism, modern physics. Study of waves, sound, light, optics, electricity, atoms and nuclei. Applications from allied health and engineering fields. Prerequisites: Physics 103 recommended and ability to solve simple algebraic equations.

Credit: 4

201 General Physics Theory I

Topics include classical mechanics, wave motion, fluids and thermodynamics using calculus. Prerequisite: Math 207 (or concurrent registration.)

Credit: 4

202 General Physics Theory II

Continution of Physics 201. Includes electricity, magnetism and optics. Prerequisite: Phys 201 (Math 208 recommended).

Credit: 4

155 Descriptive Astronomy I

Fundamentals, history and frontiers of astronomy. An examination of the earth's place in space and our neighborhood of the universe. A study of the origin and evolution of the solar system. A description of the moon, the planets, asteroids, comets and meteors.

Credit: 4

156 Descriptive Astronomy II

A study of the nature of light, the sun, properties of other stars, star clusters, the Milky Way galaxy, other galaxies, quasars, black holes, and cosmology. Prerequisite: Phys 155

Credit: 4

107 Contemporary Mathematics

An intuitive approach to contemporary mathematics. Material presented from such topics as symbolic logic, set theory, matrices, probability, graph theory and game theory.

Credit: 4

205 Elementary Statistics

An introductory course for students of all disciplines including fundamentals of modern statistical methods such as descriptive statistics; normal, binomial, and Poisson distributions; estimation theory; testing hypotheses including Z, t, F, and Chi-Square tests; correlation, and simple linear regression. Prerequisite: One year of high school algebra or Math 111.

Credit: 4

111 Algebra

Topics include polynomials, linear and quadratic equations and inequalities, exponential and logarithmic functions. (Not recommended for students with two years of high school algebra.)

Credit: 4

110 Introduction to Computer Science

A basic course in computer theory and applications. The student will gain some proficiency in a problem-oriented language including program execution on a computer.

Credit: 4

101 World Civilizations: Western

The development of western civilization from the ancient Greeks to the modern world.

Credit: 3

102 World Civilizations: Non-Western

The non-western world with particular emphasis on the early civilizations of the Middle East and Asia and on the current Third World.

Credit: 3

201 United States History I

Survey of the development of the nation from the time of the expansion of Europe to the mid-nineteenth century.

Credit: 3

202 United States History II

Survey of the development of the nation since the mid-nineteenth century.

Credit: 3

100 Introduction to Anthropology

Elements of general anthropology with a threefold emphasis on archaeology, human evolution, and culture. Comparative study of contemporary and non-literate peoples.

Credit: 3

180 Principles of Economics I

Introduction to macroeconomic principles. Application of these principles to current problems. General topics include: economic way of thinking, characteristics of market systems and competitive market behavior, national income theory, money and banking, policies for controlling inflation and unemployment, and the fundamentals of economic growth.

Credit: 3

201 Introduction to Mass Communications

A survey of the mass communications field. General description of the mass media, especially newspapers, radio, television, and magazines; their role in society; how they work together and their effect on society.

Credit: 3

101 American National Government

An introduction to the underlying principles and values, administrative and decision-making processes, and institutions of American government including discussion and analysis of problems and current issues in American politics and society. This course also serves as an introduction to political science and is a prerequisite for many advanced offerings in the department.

Credit: 3

100 Introductory Sociology

Interrelations of personality, social organization, and culture. Major social processes and institutions.

Credit: 3

190 Principles of Economics II

Introduction to microeconomic principles. Application of these principles to current problems. General topics include; demand and consumer behavior, the firm and market structures, international economic relations, comparative economic systems, and current issues with microeconomic content.

Credit: 3

102 State and Local Government

An introduction to state and local governments, focusing on institutions, administrative and decision-making processes, problems and underlying values in American society. The approach is comparative, although special attention is given to Wisconsin state and local government.

Credit: 3

201 General Psychology

A general survey of the principles of behavior and contemporary psychology. Topics include human development, personality, learning and thinking, perception, testing, mental health, biological and social aspects of behavior.

Credit: 3

102 Art Appreciation

Understanding and appreciation of painting, sculpture, and architecture. Basic components of a work of art and some general concepts of the history of art. Integration of experimental and exploratory studio experience.

Credit: 2

200 Social Problems

Personal and social maladjustments, problems of poverty, physical and mental deficiencies, crime, delinquency, family disorganization, and racial and cultural minorities.

Credit: 3

105 Music Appreciation

Elements of musical understanding. Emphasis in listening to music of all periods of music history.

Credit: 2

104 Dance Appreciation

Folk, national dancing, and modern dance as communicative art. Contributions of dance to the cultural needs of society. Lecture, discussion, and participation in dance forms.

Credit: 2

111 Theatre Appreciation

The study of theatre as an art form. Emphasis on the role of the audience and their understanding and appreciation of the elements of the theatrical production.

Credit: 2

201 American Literature I.

Survey from colonial times to the Civil War. Prerequisite: Engl 110

Credit: 3

202 American Literature II.

Surevy from the Civil War into the twentieth century. Prerequisite: Engl 110

Credit: 3

203 Survey of English Literature I.

From Beowulf into the 18th Century, with attention to social, historical, and continental literary background. Prerequisite: Engl 110.

Credit: 3

204 Survey of English Literature II.

From 18th Century to the present with attention to social, historical, and continental literary background. Prerequisite: Engl 110.

Credit: 3

205 World Literature I.

A survey of western literature from Biblical times to the Renaissance, distinguishing major trends and their interrelationships. Prerequisite: Engl 110.

Credit: 3

206 World Literature II.

A survey of western literature from the Renaissance to the present, distinguishing major trends and their interrelationships. Prerequisite: Engl 110.

Credit: 3

210 The Literature of Black America

Survey of Black American prose and poetry with emphasis on the twentieth century. Prerequisite: Engl 110.

Credit: 3

215 Afro-American Authors

An intensive study of principal Afro-American authors involving their relationship to the general field of American literature and their unique contributions as representatives of Afro-American culture. Prerequisite: Engl 110.

Credit: 3

100 Introduction to Philosophy

An introduction to the major views on important philosophic issues, such as knowledge, religion, morals, science, art, values, and society.

Credit: 3

101 Elementary French I.

Oral and written French, reading, grammar. A year of high school French is equivalent to French 101.

Credit: 4

102 Elementary French II.

Oral and written French, reading, grammar. A year of high school French is equivelant to French 101 as a prerequisite for French 102.

Credit: 4

101 Elementary German I.

Oral and written German, reading, grammar. A year of high school German is equivalent to German 101.

Credit: 4

102 Elementary German II.

Oral and written German, reading, grammar. A year of high school German is equivalent to German 101 as a prerequisite to German 102.

Credit: 4

101 Elementary Spanish I.

Oral and written Spanish, reading, grammar. A year of high school Spanish is equivalent to Spanish 101.

Credit: 4

102 Elementary Spanish II.

Oral and written Spanish, reading, grammar. A year of high school Spanish is equivalent to Spanish 101.

Credit: 4

201 French Grammar and Oral Review

A complete review of French grammar with reinforcement of the oral skills at the intermediate level. French 201 and 202 may be taken simultaneously in the spring semester. Prerequisite: French 102 or two years of high school French.

Credit: 4

202 French Readings and Conversation

An introduction to reading skills and to conversation in French. Grammatical concepts to be reinforced via the readings in French. See also Fren 203. Prerequisite: Fren 201 or three years of high school French.

Credit: 4

201 Intermediate German I.

Oral and written German, reading, grammar. Prerequisite: German 102 or two years of high school German.

Credit: 4

202 Intermediate German II.

Oral and written German, reading, grammar. Prerequisite: German 201 or three years of high school German.

Credit: 4

201 Intermediate Spanish I.

Oral and written Spanish, reading, grammar. Prerequisite: Spanish 102 or two years of high school Spanish.

Credit: 4

202 Intermediate Spanish II.

Oral and written Spanish, reading, grammar. Prerequisite: Spanish 201 or three years of high school Spanish.

Credit: 4

100 Physical Activities

Two semesters required of all students in regular degree curriculums.
Credit: 1 each semester

100 Contemporary American Education

The American system of education and contemporary issues. Implications related to citizenship preparation, personal development, career development.
Credit: 3

101 Introduction to University Services

Survey course to introduce the available resources, services and programs of the University community. Designed to meet the special needs of freshmen, sophomores, returning and adult students in order to facilitate their adjustment and success in the University complex.
Credit: 1

101 Personal Health

The dynamics of health in modern life in a rapidly changing world; modern concepts of health, disease, and longevity; current medical findings relative to weight control, emotional health, human sexuality, family planning, veneral and other disease control, drug abuse, environmental health and quackery are included.
Credit: 2

200 School Health Programs

The teacher's involvement in the school health program through instruction, health services, maintenance of a healthy school environment. Also, school health survey techniques and resources in health education.
Credit: 3

240 Community Health Education

Examination of the role of Community Health Education, involvement in the Community Health interdisciplinary team, and utilization of the processes of community research, program planning, health research, and resource and referral.
Credit: 2

331 Nutrition Education

Basic nutritional principles are covered as well as current problems or topics regarding world nutrition today. Designed for the public school teacher, Community Health Educator, or those in other related fields. Prerequisites: Soph. standing, Chem 100 or 101 or permission of the instructor.
Credit: 3

333/533 Drugs and Alcohol

The focus herein will be on content and method pertaining to the preventive aspects of chemical dependency. Included will be emphasis on basic pharmacology, causes of drug abuse, possible alternatives, and the role of school and community services. Prerequisites: Junior standing, Chem 100 or 101, PE 205 and 206.

Credit: 3

335/535 Health and Human Ecology

The modern concepts of ecology and how it affects health and the quality of life. Primarily designed for prospective health educators to explore in depth selected topic areas of personal and community health. Includes the preparation of an ecology project. Prerequisites: Junior standing and HEd 215 or HEd 240 or consent of instructor.

Credit: 2

340 Community Health Problems

A survey and analysis of today's public health problems. Emphasis is placed on the causes of ecologic implications of and the prevention and correction of public health problems. Major emphasis is also placed on community and governmental health organization. Prerequisite: Chem 100 or 101.

Credit: 3

345 Emotional Health in the Classroom

Influence of emotional health of the school-age individual as a basis for a totally healthy personality. Prerequisite: HEd 215 or HEd 240 or consent of instructor.

Credit: 3

420/620 Principles of Sex Education

The development of an understanding of how to implement and teach a positive program of sex education aimed at helping young people develop constructive attitudes, values and practices based on sound knowledge. Prerequisites: PE 205 and 206 or consent of instructor.

Credit: 3

424/624 Consumer Health

A survey of fraudulent advertising and practices in the health field such as healing practices, dietary fads, reducing agents, and other healing arts which comprise only a portion of the modern medicine show. Prerequisite: Junior standing.

Credit: 3

440/640 Community Health Field Resources

An on the job learning experience of related social and welfare agencies; designed to acquaint the student with the purposes and functions of these agencies.

Credit: 3

452/652 Health Aspects of Aging

Examination of the historical and current theories of aging. Environmental effects on aging; physical effects of aging; physical activities, sexuality, medical approaches to problems of aging; education of the elderly to cope with changes of age.

Credit: 3

490/690 Community Health Preceptorship

Professional experience in a community health service for a full semester. The student works under college supervision with a professional in the health care field. Prerequisites: Completion of all junior year requirements, recommendation by appropriate department, grade point average of at least 2.35 overall, and in major field.

Credit: 5-10

231 Bacteriology

General consideration of bacterial morphology, physiology, taxonomy, growth, and control mechanisms. Relationships of microorganisms to disease, fermentations, water and sewage, food soilage, and soil fertility. Prerequisite: Biol 100 or concurrent registration.

Credit: 4

441/641 Pathogenic Bacteriology

The study of pathogenic bacteria and their relationships to disease; principles of infection and pathogenesis, and unique properties of pathogens. Emphasis is on laboratory techniques for isolation and identification of pathogenic bacteria. Prerequisite: Biol 231 or Biol 361. Consent of instructor.

Credit: 5

361 Public Relations

Public relations related to other business functions. Research techniques in good public relations activity. Effective tools and media used in problem solution and public interest operation. Emphasis on actual documented cases of immediate and current nature. Prerequisite: MCm 201 or consent of instructor.

Credit: 2

200 Introduction to Social Work

Development of modern social services; casework, group work, and community organization as professional methods and the social agencies in which they are practiced. Relation of social agencies to other agencies such as schools and health services. Prerequisite: Sophomore standing.

Credit: 3

204 Introduction to Discussion

Principles and practice of public and private discussion with emphasis on purposes, common forms, analysis and evaluation. Parliamentary procedure. Prerequisite: SpTh 101 or its equivalent.

Credit: 3

305 Public Speaking

A course in the theory and presentation of expository, argumentative and persuasive speeches. Designed for non-speech majors and minors. (Not open to departmental majors, either concentration, or minors except speech minors in Elementary Education.) Prerequisite: SpTh 101 or its equivalent.

Credit: 3

205 Human Anatomy-Physiology

Basic human anatomy and physiology. A study of the structure and function of the nervous, skeletal, musculature, and reproductive systems. PE 206 may precede PE 205 or may be taken simultaneously. (Not open for credit to students who have had Biol 205.) Prerequisite: Biol 100.

Credit: 3

206 Human Anatomy-Physiology

Basic human anatomy and physiology. A study of the structure and function of the respiratory, circulatory, digestive, urinary, and endocrine systems. PE 206 may precede PE 205 or to be taken simultaneously. (Not open for credit to students who have had Biol 206.) Prerequisite: Biol 100.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the COMMUNITY HEALTH EDUCATOR program at any college or university in Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Biology

Advanced Biology

Chemistry

Physics

Psychology

Sociology

Computer Literacy

Economics

Advanced Algebra with Trigonometry

Physical Geography

Oral Communication

SCHOOL HEALTH EDUCATOR

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Requirements in Health Education	Credit
101 Personal Health	2
200 School Health Programs	3
215 Philosophy of Health Education	2
331 Nutrition Education	3
333 Drugs and Alcohol	3
340 Community Health Problems	3
345 Emotional Health in the Classroom	3
420 Principles of Sex Education	3
424 Consumer Health	3
Plus H. Ed. 335, 440, 452, PE 343	5-6
Requirements in Biology	
231 Bacteriology	4
Requirements in Education	
310 Child Development (Psyc. 310)	3
317 Audiovisual Education	1
321 Evaluation in Health and Physical Education	3
370 Educational Pyschology (Psyc. 370)	3
403 Student Teaching or,	8
404 Teaching Internship	10
401 Methods (Minor)	2-3
410 Curriculum and Resourses in Health Education	2
412 Methods in Health Education	2
435 Reading in the Secondary School	3
465 Human Relations in the Educational Community	3
Requirements in Physical Education	
205 Human Anatomy-Physiology	3
206 Human Anatomy-Physiology	3

English (two semesters)	Credit
A. Engl 110, College English I	3
B. Engl 301, Advanced Composition	3
or,	
Engl 303, College English II	3
or,	
Engl 305, Creative Writing	3

Exemptions from I.B.

1. Students who qualify with a grade of "B" or better in English 110
2. Students who pass the Advanced Placement Examination and receive credit for English 110. (See course descriptions for 301, 303, and 305. Engl 301 and 305 are intended primarily for English majors and minors.)

Speech (one Semester)

SPTh 101, Principles of Effective Speaking	2

Science-Mathematics (three semesters)

Not more than two semesters may be taken in the same department. At least one semester of laboratory science must be included (Departments A through D). Departments are designated A through F. 12

A. Biology

Biol 100, Principles of Biology	4
This is an introductory course. Students wishing to take a second semester of biology to meet requirements in Basic Studies may choose from:	
Biol 201, Human Biology	4
(Not applicable to a major or minor)	
Biol 204, Plant Biology	4
Biol 211, Vertebrate Zoology	4
Biol 212, Invertebrate Zoology	4

B. Chemistry

Chem 100, Contemp. Chemistry, or 101-104 or 103-104, General Chem	4-4

C. Geography/Earth Science

Geog 121, Weather and Climate	4
Geog 122, Maps and Landforms	4
(Geog/Earth Sci 122 may precede 121.)	

D. Physics

Phys 103-104, Elementary Physics I and II (Phys 104 may precede 103) or,	
Phys 201-202, General Physics Theory I and II	4-4
(Phys 201 requires background in calculus or concurrent registration in May 207.)	
Phys 155-156, Descriptive Astronomy I and II	4-4

E. Mathematics

Math 107, Contemporary Mathematics	4
Math 205, Elementary Statistics	4

(Math 111 or 2 semesters of high school mathematics required for admission to Math 205) Qualified students desiring to take other or more advanced courses in mathematics may fulfill requirements in Basic Studies by taking courses numbered higher than the above (Excluding Math 200.)

F. Computer Science

CptS 110, Introd. To Computer Science	4

History-Social Science (four semesters)

The four semesters required must include two semesters of history (Group A) and two semesters of social science (Group B).

A. History (two semesters in the same course)

Hist 101-102, World Civilizations	3-3
or	
Hist 201-202, U.S. History I and II	3-3

B. Social Science (two semesters)

Anth 100, Introd. to Anthropology	3
Econ 180, Principles of Economics I	3
MCm 201, Introduction to Mass Communications	3
PolS 101, American National Government	3
Soci 100, Introductory Sociology	3
Econ 190, Principles of Economics II	3
PolS 102, State and Local Government	3
Psyc 201, General Psychology	3
Soci 220, Social Problems	3

Humanities (four semesters) 9-14

The required four semesters must be taken in at least three departments and must include at least one semester of literature. Departments are designated A through G.

A.	Art 102, Art Appreciation	2
B.	Musi 105, Music Appreciation	2
C.	PE 104, Dance Appreciation	2
D.	SpTh 111, Theatre Appreciation	2
E.	Engl 201-202, American Literature I and II	3-3
	Engl 203-204, English Literature I and II	3-3
	Engl 205-206, World Literature I and II	3-3
	Engl 210, Literature of Black America	3
	Engl 215, Afro-American Authors	3

Freshman English is a prerequisite for all literature courses, which normally are taken in the sophomore year

Literature courses in foreign language are acceptable in this Basic Studies group.

F. Phil 100, Introduction to Philosophy	3
G. Foreign Language (one department)	4-4
101-102, Elementary French, German or Spanish (4 Cr. Per semester) or,	
201-202, Intermediate French, German or Spanish (4 cr. per semester)	
Physical Activities (two semesters)	2
P.E. 100, Physical Activities	1-1
Exploration (one semester)	2-5
A. JSED 100, Contemporary American Education	3
B. HED 101, Personal Health	2
C. Any course included in Categories I, III, IV, and V when such selection constitutes an additional course of 2-5 credits beyond the minimum requirement in those categories.	

SCHOOL HEALTH EDUCATOR

COURSE DESCRIPTIONS

101 Personal Health

The dynamics of health in modern life in a rapidly changing world; modern concepts of health, disease, and longevity; current medical findings relative to weight control, emotional health, human sexuality, family planning, venereal and other disease control, drug abuse, environmental health and quackery are included.

Credit: 2

200 School Health Programs

The teacher's involvement in the school health program through instruction, health services, maintenance of a healthy school environment. Also, school health survey techniques and resources in health education.

Credit: 3

215 Philosophy of Health Education

Philosophy of education and the role of health education in education. For health education majors and minors only.

Credit: 2

331 Nutrition Education

Basic nutritional principles are covered as well as current problems or topics regarding world nutrition today. Designed for the public school teacher, Community Health Educator, or those in other related fields. Prerequisites: Soph. standing, Chem 100 or 101 or permission of the instructor.

Credit: 3

333/533 Drugs and Alcohol

The focus herein will be on content and method pertaining to the preventive aspects of chemical dependency. Included will be emphasis on basic pharmacology, causes of drug abuse, possible alternatives, and the role of school and community services. Prerequisites: Junior standing, Chem 100 or 101, PE 205 and 206.

Credit: 3

340 Community Health Problems

A survey and analysis of today's public health problems. Emphasis is placed on the causes of ecologic implications of and the prevention and correction of public health problems. Major emphasis is also placed on community and governmental health organization. Prerequisite: Chem 100 or 101.

Credit: 3

345 Emotional Health in the Classroom

Influence of emotional health of the school-age individual as a basis for a totally healthy personality. Prerequisite: H Ed215 or H Ed 240 or consent of instructor.

Credit: 3

420/ 620 Principles of Sex Education

The development of an understanding of how to implement and teach a positive program of sex education aimed at helping young people develop constructive attitudes, values and practices based on sound knowledge. Prerequisites: P E 205 and 206 or consent of instructor.

Credit: 3

424/624 Consumer Health

A survey of fraudulent advertising and practices in the health field such as healing practices, dietary fads, reducing agents, and other healing arts which comprise only a portion of the modern medicine show. Prerequisite: Junior standing.

Credit: 3

335/535 Health and Human Ecology

The modern concepts of ecology and how it affects health and the quality of life. Primarily designed for prospective health educators to explore in depth selected topic areas of personal and community health. Includes the preparation of an ecology project. Prerequisites: Junior standing and H Ed 215 or H Ed 240 or consent of instructor.

Credit: 2

440/640 Community Health Field Resources

An on the job learning experience of related social and welfare agencies; designed to acquaint the student with the purposes and functions of these agencies.

Credit: 3

452/652 Health Aspects of Aging

Examination of the historical and current theories of aging. Environmental effects on aging; physical effects of aging; physical activities, sexuality, medical approaches to problems of aging; education of the ederly to cope with changes of age.

Credit: 3

343/543 Adult Fitness, Cardiac Rehabilitation

Provides an understanding of the organization and administration of adult fitness and cardiac rehabilitation programs. Additional emphasis will be placed upon the laboratory evaluation of the level of physical fitness of the participant, as well as conduction of exercise sessions for the individual. Prerequisite: Junior standing.

Credit: 3

231 Bacteriology

General consideration of bacterial morphology, physiology, taxonomy growth, and control mechanisms. Relationships of microorganisms to disease, fermentation, water and sewage, food soilage, and soil fertility. Prerequisite: Biol 100 or concurrent registration.

Credit: 4

310 Child Development

Behavior and developmental patterns from conception through adolescence. Field experience and directed observation of children. Prerequisite: Psyc 201 or consent of instructor.(Not open for credit to those who have had Psyc 212).

Credit: 3

321/521 Evaluation in Health and Physical Education

Statistical techniques and standard tests and application of these tests to health and physical education. (For students in health and physical education.) Prerequisite: Acceptance into teacher education.

Credit: 3

403 Student Teaching

Professional experiences in a selected elementary or secondary school for a full semester. Students work under college supervision with elementary and/or secondary school personnel in their area of specialization. Prerequisites: Completion of junior year requirements in education, completion of special methods courses for secondary students, recommendation by the appropriate education departments, grade point average of at least 2.35 overall and the major fields and final approval by the Teacher Education Council. Pass-Fail grading.

Credit: 4-10

404 Teaching Internship

Involves full time closely supervised teaching for a 20 week period in a public school system cooperating with the University. The student participates in school activities and is encouraged to engage in some community activities. Prerequisites: Admission to the internship and completion of all education courses ordinarily required for admission to JSEd 403. A grade point average of at least 2.75 is required and final approval by the Teacher Education Council. Pass-Fail grading.

Credit: 10

401 Methods of Teaching Physical Education

Readings related to, and discussion and application of methods of, teaching physical education in the elementary and secondary school. Prerequisites: JSEd 310, P E 251-252.

Credit: 2

224

410 Curriculum and Resources in Health Education

The purpose is to make descriptive and normative inquiry into the content and methodology of health education curriculum of the public schools-kindergarten through secondary-through the use of all available resources in the community; thus, establishing a better method of problem solving.

Credit: 2

412 Methods in Health Education

Utilization of approved methods and materials for teaching health in grades K-12 including the practical application of self-evaluation through the use of closed circuit television. Prerequisite: Junior standing.

Credit: 2

435/635 Reading in the Secondary School

Rationale of the reading program, background of reading instruction, essential skills, and programs for secondary schools.

Credit: 3

205 Human Anatomy-Physiology

Basic human anatomy and physiology. A study of the structure and function of the nervous, skeletal, musculature, and reproductive systems. P E 206 may procede P E 205 or maybe taken simultaneously. (Not open for credit to students who have had Biol 205). Prerequisite: Biol 100 Lect.

Credit: 3

206 Human Anatomy-Physiology

Basic human anatomy and physiology. A study of the structure and function of the respiratory, circulatory, digestive, urinary, and endocrine systems. P E 206 may preced P E 205 or to be taken simultaneously. (Not open for credit to student who have had Biol 206). Prerequitie: Biol 100.

Credit: 3

101 College English I

An introductory course in composition.

Credit: 3

301 Advanced Composition

Emphasis on the writing of a judicial criticism of short stories, poems, and plays. Some attention given to original writing, intended primarily for English majors and minors.(Not applicable for credit on the minor to students who have had Engl 305.) Prerequisites: Six credits in 200 level English courses, or consent of instructor.

Credit: 3

303 College English II

An advanced course devoted to the theory and practice of expository writing and related rhetorical forms, especially persuasion and argument. Emphasis placed on coherent organization, clear and forceful phrasing, logical thinking and other aspects of effective communication. Required of all students for graduation except those who take English 301 or 305 and those exempted on the basis of achievement in English 110.(Not open to English major or minor credit). Prerequisites: Engl 110 and at least Sophomore standing.

Credit: 3

305 Creative Writing

The writing of poetry, fiction, drama. Provides students who have some ability in creative writing with the opportunity to profit from the comments of other such students and from the supervision and suggestions of an experienced writer. Intended primarily for English majors and minors. (Not applicable for credit on the minor to students who have had English 301.) Prerequisites: Six credits in 200 level English courses, or consent of instructor.

Credit: 3

101 Principles of Effective Speaking

Consideration of the process of oral communication and principles of speech with application of these basic principles in selected speaking projects.

Credit: 2

100 Principles of Biology

A foundation course dealing with the living system primarily at the cellular level. Chemical composition, structure, metabolism, reproduction, inheritance, ecology, and evloution are stressed.

Credit: 4

201 Human Biology

Biological principles and concepts relevant to the human body, society and the environment. Prerequisite: Biol 100. Not applicable for a major or minor in Biology.

Credit: 4

204 Plant Biology

An investigation of the general structure and morphology of plants, and an inquiry into their growth and development. Prerequisite: Biol 100.

Credit: 4

211 Vertebrate Zoology

Anatomy, physiology, and evolution of the vertebrates. White rat as the basic study animal, supplemented by other forms as needed. Prerequisite: Biol 100.

Credit: 4

226

212 Invertebrate Zoology

Primarily, a consideration of animals from the protozoan level through the echinoderm. The emphasis is on classification, life cycles, and evolutionary relationships. Prerequisite: Biol 100.

Credit: 4

100 Contemporary Chemistry

A terminal non-mathematical course focusing on applied chemistry. Emphasis placed on selected topics in organic chemistry, biochemistry, and nuclear chemsitry that are pertinent to today's problems.

Credit: 4

103 General Chemistry I

For selected students with good backgrounds in chemistry and mathematics. Topics treated in greater depth than in Chem 101. (Students with credit in Chem 101 cannot earn credit in Chem 103.)

Credit: 4

104 General Chemistry II

A second semester general chemistry course introducing the topics of equilibrium, kinetics, thermodynamics, electrochemistry and descriptive chemistry. Qualitative analysis is included in the laboratory portion of this course. Prerequisite: Chem 101 or 103.

Credit: 4

121 Weather and Climate

A general introduction to basic climatology including an analysis of the elements of weather and climate with their associated world patterns. Attention is given to the classification of North American air masses and interpretation of daily weather maps.

Credit: 4

122 Maps and Landforms

Introduction to map reading and the geography of landforms. Includes elements of location and map use and a study of earth materials and landforms. Laboratory experience with topographic maps and common rocks and minerals. May be taken separately or in conjunction with Geog/Earth Sci 121 to gain an introduction to the physical earth as the home of man.

Credit: 4

103 Elementary Physics I

Mechanics, properties of matter. Physical measurement, classical study of force, torque, dynamics, energy, machines, fluids, gases, liquids, solids, thermodynamics. Applications from allied health and engineering fields. Prerequisite: Ability to solve simple algebraic equations.

Credit: 4

104 Elementary Physics II

Wave phenomena, electricty and magnetism, modern physics. Study of waves, sound, light, optics, electricity, atoms and nuclei. Applications from allied health and engineering fields. Prerequisites: Physics 103 recommended and ability to solve simple algebraic equations.

Credit: 4

201 General Physics Theory I

Topics include classical mechanics, wave motion, fluids and thermodynamics using calculus. Prerequisite: Math 207 (or concurrent registration.)

Credit: 4

202 General Physics Theory II

Continuation of Physics 201. Includes electricity, magnetism and optics. Prerequisite: Phys 201 (Math 208 recommended).

Credit: 4

155 Descriptive Astronomy I

Fundamentals, history and frontiers of astronomy. An examination of the earth's place in space and our neighborhood of the universe. A study of the origin and evolution of the solar system. A description of the moon, the planets, asteroids, comets and meteors.

Credit: 4

156 Descriptive Astronomy II

A study of the nature of light, the sun, properties of other stars, star clusters, the Milky Way galaxy, other galaxies, quasars, black holes, and cosmology. Prerequisite: Phys 155.

Credit: 4

107 Contemporary Mathematics

An intuitive approach to contemporary mathematics. Material presented from such topics as symbolic logic, set theory, matrices, probability, graph theory and game theory.

Credit: 4

205 Elementary Statistics

An introductory course for students of all discplines including fundatmentals of modern statistical methods such as descriptive statistics; normal, binomial, and Poisson distributions; estimation theory; testing hypothesis including Z,t,F, and Chi-Square tests; correlation, and simple linear regression. Prerequisite: One year of high school algebra or Math 111.

Credit: 4

110 Introduction to Computer Science

A basic course in computer theory and applications. The student will gain some proficiency in a problem-oriented language including program execution on a computer.

Credit: 4

101 World Civilizations: Western

The development of western civilization from the ancient Greeks to the modern world.

Credit: 3

102 World Civilizations: Non-Western

The non-western world with particlar emphasis on the early civilizations of the Middle East and Asia and on the current Third World.

Credit: 3

201 United States History I

Survey of the development of the nation from the time of the expansion of Europe to the mid-nineteenth century.

Credit: 3

202 Untied States History II

Survey of the development of the nation since the mid-nineteenth century.

Credit: 3

100 Introduction to Anthropology

Elements of general anthropology with a threefold emphasis on archaeology, human evolution, and culture. Comparative study of contemporary and non-literate peoples.

Credit: 3

180 Principles of Economics I

Introduction to macroeconomic principles. Application of these principles to current problems. General topics include: economic way of thinking, characteristics of market systems and competitive market behavior, national income theory, money and banking, policies for controlling inflation and unemployment, and the fundamentals of economic growth.

Credit: 3

201 Introduction to Mass Communications

A survey of the mass communications field. General description of the mass media, especially newspapers, radio, television, and magazines; their role in society; how they work together and their effect on society.

Credit: 3

101 American National Government

An introduction to the underlying principles and values, administrative and decision-making processes, and institutions of American government including discussion and analysis of problems and current issues in American politics and society. This course also serves as an introduction to political science and is a prerequisite for many advanced offerings in the department.
Credit: 3

100 Introductory Sociology

Interrelations of personality, social organization, and culture. Major social processes and institutions.(Open to freshmen)
Credit: 3

190 Principles of Economics II

Introduction to microeconomic principles. Application of these principles to current problems. General topics include: demand and consumer behavior, the firm and market structures, international economic relations, comparative economic systems, and current issues with microeconomic content.
Credit: 3

102 State and Local Government

An introduction to state and local governments, focusing on institutions, administrative and decision-making processes, problems and underlying values in American society. The approach is comparative, although special attention is given to Wisconsin state and local government.
Credit: 3

201 General Psychology

A general survey of the principles of behavior and contemporary psychology. Topics include human development, personality, learning and thinking, perception, testing, mental health, biological and social aspects of behavior.
Credit: 3

220 Social Problems

Personal and social maladjustment, problems of poverty, physical and mental deficiencies, crime, delinquency, family disorganization, and racial and cultural minorities.
Credit: 3

102 Art Appreciation

Understanding and appreciation of painting, sculpture, and architecture. Basic components of a work of art and some general concepts of the history of art. Integration of experimental and exploratory studio experience.
Credit: 2

230

105 Music Appreciation

Elements of musical understanding. Emphasis in listening to music of all periods of music history.

Credit: 2

104 Dance Appreciation

Folk, national dancing, and modern dance as communicative art. Contributions of dance to the cultural needs of society. Lecture, discussion, and participation in dance forms.

Credit: 2

111 Theatre Appreciation

A study of theatre as an art form. Emphasis on the role of the audience and their understanding and appreciation of the elements of a theatrical production.

Credit: 2

201 American Literature I

Survey from colonial times to the Civil War. Prerequisite: Eng 110

Credit: 3

202 American Literature II

Survey from the Civil War into the twentieth century. Prerequisite: Engl 110.

Credit: 3

203 Survey of English Literature I

From Beowulf into the 18th Century, with attention to social, historical, and continental literary background. Prerequisite: Engl 110.

Credit: 3

204 Survey of English Literature II

From 18th Century to the present with attention to social, historical, and continental literary background. Prerequisite: Engl 110.

Credit: 3

205 World Literature I

A survey of western literature from Biblical times to the Renaissance, distinguishing major trends and their interrelationships. Prerequisite: Engl 110.

Credit: 3

206 World Literature II

A survey of western literature from the Renaissance to the present, distinguishing major trends and their interrelationships. Prerequisite: Engl 110.

Credit: 3

210 The Literature of Black America

Survey of Black American prose and poetry with emphasis on the twentieth century. Prerequisite: Engl 110

Credit: 3

215 Afro-American Authors

An intensive study of principle Afro-American authors involving their relationship to the general field of American literature and their unique contributions as representatives of Afro-American culture. Prerequisite: Engl 110.

Credit: 3

100 Introduction to Philosophy

An introduction to the major views on important philosophic issues, such as knowledge, religion, morals, science, art, values and society.

Credit: 3

101 Elementary French I

Oral and written French, reading, grammar. A year of high school French is equivalent to French 10.

Credit: 4

102 Elementary French II

Oral and written French, reading, grammar. A year of high school French is equivalent to French 101 as a prerequisite for French 102.

Credit: 4

101 Elementary German I

Oral and written German, reading, grammar. A year of high school German is equivalent to German 101.

Credit: 4

102 Elementary German II

Oral and written German, reading, grammar. A year of high school German is equivalent to German 101 as a prerequisite to German 102.

Credit: 4

101 Elementary Spanish I

Oral and written Spanish, reading, grammar. A year of high school Spanish is equivalent to Spanish 101.

Credit: 4

102 Elementary Spanish II

Oral and written Spanish, reading, grammar. A year of high school Spanish is equivalent to Spanish 101.

Credit: 4

201 French Grammar and Oral Review

A complete review of French grammar with reinforcement of the oral skills at the intermediate level. French 201 and 202 may be taken simultaneously in the spring semester. Prerequisite: French 102 or two years of high school French.

Credit: 4

202 French Reading and Conversation

An introduction to reading skills and to conversation in French. Grammatical concepts to be reinforced via the readings in French. See also Fren 203. Prerequisite: Fren 201 or three years of high school French.

Credit: 4

201 Intermediate German I

Oral and written German, reading, grammar. Prerequitie: German 102 or two years of high school German.

Credit: 4

202 Intermediate German II

Oral and written German, reading, grammar. Prerequisite: German 201 or three years of high school German.

Credit: 4

201 Intermediate Spanish I

Oral and written Spanish, reading, grammar. Prerequisite: Spanish 102 or two years of high school Spanish.

Credit: 4

202 Intermediate Spanish II

Oral and written Spanish, reading, grammar. Prerequisite: Spanish 201 or three years of high school Spanish.

Credit: 4

100 Physical Activities

Two semesters required of all students in regular degree curriculums.

Credit: 1 each
semester

100 Contemporary American Education

The American system of education and contemporary issues. Implications related to citizenship preparation, personal development, career development.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the SCHOOL HEALTH EDUCATOR program at any college or university in Wisconsin. See Appendix I for course descriptions.

Biology

Chemistry

Physics

Advanced Algebra with Trigonometry

Computer Lit.

Economics

Psychology

Sociology

English Language Arts

Developmental Writing

Writing Seminar

Physical Geography

HEALTH INFORMATION and COMMUNICATION

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MEDICAL RECORDS ADMINISTRATOR

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletin of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman Year First Semester	Credit
English 101 Freshman English (Students should take the English placement test)	3
Chemistry 100 Chemical Science	3
Psychology 101 Introduction to Psychology	3
Zoology 202 Anatomy and Physiology I	4
Electives	3
	15

Second Semester	
English 202 Technical Writing-Health Science Writing	3
Chemistry 101 Chemical Science	3
Communication 103 Public Speaking	2
Zoology 203 Anatomy and Physiology II	4
Sociology 101 Introducation to Sociology	3
Electives	3
	15

Sophomore Year First Semester	
Classics 105 Greek and Latin Origins of Medical Terms	2
Mathematics 112 College Algebra	3
Health Science 101 Problems and Practices in Health and Health Delivery Systems	3
Health Science 205 Pathobiology I	4
Electives	3
	15

Second Semester	
Microbiology 101 General Survey of Microbiology	4
Mathematics 215 Elementary Statistical Analysis or other statistics course	3
Economics 103 Principles of Economics	3
Health Science 206 Pathobiology II	2
Electives	6
	18

Junior Year First Semester	Credit
Business Adminstration 230 Introduction to Administrative Data Processing	3
Health Science 311 Law for Health Care Consumers and Professionals	3
Medical Record 315 Word Processing Systems in Health Care Documentation	3
Medical Record 321 Introduction to Medical Record Administration	3
Electives	5
	17

Second Semester

Business Adminstration 330 Administrative Organization	3
Medical Record 324 Health Care Information Systems and Law	2
Medical Record 330 Information Storage and Retrieval Systems	3
Electives	5
	16

Senior Year First Semester

Medical Record 411 Nosology and Health Data Collection Systems	3
Medical Record 420 Organization and Management of Medical Record Centers	3
Medical Record 441 Health Data Systems	3
Medical Record 432 Clinical Practicum I	2
Electives	6
	17

Second Semester

Medical Record 423 Specialized Medical Record Systems	3
Medical Record 450 Health Care Delivery Evaluation Methods	3
Medical Record 510 Medical Record Administration Seminar	2
Medical Record 522 Clinical Practicum II	2
Medical Record 540 Medical Record Center Management Residency	3
	13

MEDICAL RECORDS ADMINISTRATOR

COURSE DESCRIPTIONS

101 Freshman English

A course designed to improve the student's skill in reading and writing English. Required of all freshmen except those who qualify for exemption. Prereq: none.

Credit: 3

100 Chemical Science

Introductory course in general inorganic chemistry designed for the student with little or no previous science training. Not open for credit to students who have had Chem 102, 111, or 117. Prereq: a score of one or better on Math Placement exam.

Credit: 4

101 Introduction to Psychology

The scientific study of behavior. Prereq: none.

Credit: 3

202 Anatomy and Physiology I

Anatomy and physiology of the human body including cell, tissues, skeletal, muscular, and nervous systems. Required of students in nursing and med tech program. Prereq: none.

Credit: 4

202 Technical Writing(Subtitle)

Individualized instruction and practice in writing letters, reports, and abstracts related to student's major. Particularly recommended for science, engineering, and architecture students. Prereq: satisfaction of English proficiency requiement.

Credit: 3

101 Chemical Science

A one-semester course in elementary organic chemistry designed as a terminal course for the nontechnical student. Prereq: Chem 100 or 102, and a score of one or better on Math Placement exam.

Credit: 3

103 Public Speaking

Principles of public address in informative, persuasive, and special occuasion situations, with emphasis on the theory, composition, and presentation of speeches. Not open to students who have had Comm 105. Prereq: none

Credit: 3

203 Anatomy and Physiology II

Anatomy and physiology of the human body including cardiovascular, repiratory, digestive, excretory, endocrine, and reproductive systems. Prerequisite: Zool 202

Credit: 4

101 Introducation to Sociology

Sociology as a special field of social science. The relationship of the work of the sociologist to contemporary society; an examination of the sociological perspective. Prereq: none.

Credit: 3

105 Greek and Latin Origins of Medical Terms

Greek and Latin words, roots, prefixes, and suffixes in modern medical and technical terminology. Prereq: none.

Credit: 2

112 College Algebra

Real number system; coordinate geometry; linear, quadratic, exponential, logarithmic, and polynomial functions; inequalities; systems of equations; determinants and matrices; mathematical induction; binomial theorem; progressions; permutations, combinations, and probability. Does not carry degree credit for Engr and Applied Sci students or for students with a placement score of 3. Prereq: Math 100 or placement score of 2.

Credit: 3

101 Problems and Practices in Health and Health Delivery Systems

Introducation to environmental, genetic, social, cultural, ecomonic, and political factors affecting health and health care. Lect.,disc. Enrollment for 3 cr requires field service.

Credit: 2-3

205 Pathobiology

A lecture course dealing with the cause of disease and its consequence. Designed for students with a minimal scientific background. Prereq: Biol 103 or Zool 101 or 170.

Credit: 3

101 General Survey of Microbiology

Study of the nature and activities of microorganisms. Topics include surveys of bacteria, fungi, viruses, immunology, and disease applications. Not open to medical technology majors. Prereq: Chem 100 and 101 or Chem 102.

Credit: 4

215 Elementary Statistical Analysis

Elementary probability theory; descriptive statistics; elements of sampling; concepts of random variable; distribution and sampling distributions; basic problems of statistical inference including basic problems of statistical inference including estimation; tests of statistical hypothesis in both one- and two-sample cases. Prereq: Math 112 or placement score of 3.

Credit: 3

103 Principles of Economics

Economic method; value and price for the firm and industry; wages, interest and profits, rents; specialization in producation. Prereq: none.

Credit: 3

206 Pathobiology(Modular course)

A continuation of Pathobiology I dealing with the pathogenesis of the major diseases of organ systems. Prereq: Health Sci 205 or con in Health Sci 450 or cons inst.

Credit: 1-2

230 Introduction to Administration Data Processing

Flowcharting of business applications, elementary systems analysis; simple problem oriented languages e.g. COBOL; programming; elements of computing systems. Prereq: High School Mathematics Preparation III.

Credit: 3

311 Law for Health Care Consumers and Professionals

An introducation to law as it relates to health care. Malpractice and patient rights are stressed. Prereq: jr. st.

Credit: 2

315 Word Processing Systemsn in Health Care Documentation

Content and format of health reports utilizing routine and specialized terminologies; manual and automated systems of word processing. Prerequisite: Classics 105, typing ability and jr. student in med. rec. adm. program or written consent of program director in med. rec. adm. program.

Credit: 3

321 Introduction to Medical Record Administration

Introduction to medical record history, the profession, and function of a medical record department. Prerequisite: jr. st. in med. rec. adm. program or written consent or program dir. in med. rec. adm..program.

Credit: 3

330 Organizations

An introduction to human behavior in organizations, organizational structures and processes, and interactions between organizations and their environments. Students will examine various theories and research findings on selected topics. Prerequisite: jr. student and Bus. Ad 210 or con reg.

Credit: 3

324 Health Care Information Systems and the Law

Principles of law as applied to health care delivery systems with emphasis on uses and abuses of patient care information. Prerequisite: jr. st. in med. rec. adm. program and Health Science 311 or written cons of program dir. in med. rec. adm. program.

Credit: 2

330 Health Care Documentation Systems and Standards

Systems of health care documentation as affected by voluntary and governmental standards and regulations and evaluative methodologies. Prerequisite: jr. st. in med rec adm program or written cons of program dir in med rec adm program.

Credit: 3

333 Information Storage and Retrieval Systems

Principles of information identification, storage, and retrival, preservation, and retention of health care data. Prerequisite: jr. st. in med. rec. adm. program or written cons of program dir. in med. rec. adm. program.

Credit: 3

411 Nosology and Health Care Collection Systems

Study of health care classification and collection systems and maintenance of special registries; research and statistical techniques. Prerequisite: Math 215 or equiv; sr. st. in med rec adm program or written consent of program dir. in med. rec. adm. program.

Credit: 3

420 Organization and Management of Medical Record Centers

Application or organization and management principles to development and administration of medical record centers with emphasis on policies, procedures, control, and production standards. Prerequisite: Bus Adm 330, sr st in med rec adm program.

Credit: 3

441 Health Data Systems

Application of computerized systems and techniques to health information systems in the health care field. Prerequisite: Bus Adm 230 or equiv; sr st in med rec adm program or written cons of program dir in med rec adm program.

Credit: 3

241

432 Clinical Practicum I

Assignment to local medical record centers for supervised practical experience in all medical record functions. One day a week. Prerequisite: sr. st. in med rec adm program.

Credit: 2

423 Specialized Medical Record Systems

Study of record systems designed for ambulatory care settings, skilled nursing facilites, and specialized institutions. Prerequisite: sr. st in med rec adm. program.

Credit: 3

450 Health Care Delivery Evaluation Methods

Theory and development of quality assurance review procedures for the practice of medicine by physicians and health care professionals. Emphasis on audit methodologies. Prerequisite: Bus Adm 230 or equiv; Med Rec Adm. 330, 411, 441, and sr st in med rec adm program or written cons of program dir in med rec adm program.

Credit: 3

510 Medical Record Administration Seminar

Analysis and discusssion of professional knowledge acquired in Medical Record Administration curriculum to specific problems encountered in health information systems. Prerequisite: sr st. in med rec adm program or written cons of program dir in med rec adm program.

Credit: 2

522 Clinical Practicum II

Continuation of Med Rec Adm 432 in additional medical record administration functions. Prerequisite: Med Rec Ad 432 and sr st in med rec adm program.

Credit: 2

540 Medical Record Center Management Residency

Four-week management experience working with and under directions of Registered Record Administrator. Pre-residency conferences, and post-residency evaluation and critque seminar. Prerequisite: Med Rec Adm 432 and 522, sr st in med rec adm program.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL RECORDS ADMINISTRATOR program at any college or university in Wisconsin. See Appendix I for the course description.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Sociology

Economics

Advanced Algebra with Trigonometry*

Advanced Algebra*

* In lieu of Advanced Algebra with Trigonometry you may elect to take Advanced Algebra.

MEDICAL RECORDS TECHNICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester	Credits
Medical-Dental Records Management 105-227	2
Medical Records Machine Skills 106-125	3
Medical-Dental Terminology 1 510-133	3
Introduction to Medical Records Science 530-112	2
Human Anatomy & Physiology 1 530-141	3
Communication Skills 1 801-151	3
Orientation 809-100	0
	16

Second Semester	
Medical Records Transcription 106-147	3
Medical Records Science 2 530-114	3
Medical Records Directed Practice 1 530-120	4
Human Anatomy & Physiology 2 530-143	3
Legal Aspects of Medical Records 530-151	1
Communication Skills 2 801-152	3
Orientation 809-100	0
	17

Second Year First Semester	
Introduction to Date Processing 107-117	3
Medical Records Science 3 530-116	3
Medical Records Directed Practice 2 530-122	4
American Institutions 809-153	3
Elective	3
Orientation 809-100	0
	16

Second Semester	
Medical Records Directed Practice 3 530-124	4
Medical Records Seminar 530-134	1
Economics 809-110	3
Psychology of Human Relations 809-151	3
Elective	5
Orientation 809-100	0
	16

MEDICAL RECORDS TECHNICIAN

COURSE DESCRIPTIONS

105-117 Medical-Dental Records Management

This course teaches the process of classifying, arranging, and storing records as it relates to the medical-dental field. The twenty basic filing rules are taught. The filing systems covered include alphabetical, numeric, vertical and visible card filing, equipment and supplies, records control and retention creating records systems, and evaluating records systems and personnel. Field trips are also included to enhance the learning process.

Credit: 2

106-125 Medical Records Machine Skills

This course places major emphasis on the development of basic typewriting skill and techniques to a level(50-65 wpm) acceptable for typing medical records and transcription. Also included is basic training in the operation of electronic calculators, the IBM Mag Card Selectric Typewriter, and (optional) the CPT cassette tape tyewriter -- machines common in modern business offices and word processing systems.

AVT(Audiovisual-tutorial) lessons and drills designed for independent study under guidance of the instructor develop students' typing speed and accuracy and teach the correct typing of business letters and medical forms and records, centering, and tabulation. AVT lessons also provide the instruction for the operation of the electronic calculator. Programmed lessons instruct the students in the basic operation of the automatic typewriters.

Credit: 3

510-133 Medical-Dental Terminology 1

Students in this course will have preparation to become Word Technicians with the specialty of transcribing medical terms readily. They will have knowledge of resource material available, when this is needed, to supplement their basic terminology vocabulary.

This course is a study of terms relating to all areas of medical science, hospital service, and paramedical specialties. Special emphasis will be placed on word components, namely: prefix. suffix and root parts. Included also will be medical abbreviations.

Credit: 3

530-112 Introduction to Medical Record Science

A comprehensive study of patient information systems in the general hospital and the long-term facility. This includes study of the historical development of the medical record department and medical record personnel; study of the generation, format and analysis of the medical record and the basis for the patient information system; standards for medical records in skilled nursing facilities and intermediate care nursing facilities; and the principles and methods of storage and retrieval of medical records. The importance of the medical record as a legal document and the effect of confidential communications laws of the release of information,consents, authorization and releases will be emphasized, as well as the proper release of information from medical records and the legal procedures involved in the court disclosure of medical records.

Credit: 2

801-151 Communication Skills 1

Communication Skills 1 is an introduction to basic communication concepts related to the success and failure of oral communication and the nature of communicative situations, both on and off the job. Emphasis is on listening skills, nonverbal communication, problem-solving, and speaking to demonstrate and inform. Although Communication Skills 1 is not a prerequisite to Communication Skills 2, the sequence from oral to written forms of communication sets a pattern which allows the students to consider general communicative responsibilities expressed in the less complicated oral forms before they face the more technical tasks associated with written forms.

Credit: 3

106-147 Medical Records Transcription

The course is designed to give the potential medical records worker a skill in transcribing from a cassette, belt, record, or from magnetic tape. Accuracy of transcripts is emphasized. The student will apply the transcription skill to typing on forms which are common in most medical situations. Practice will be provided in all areas of medicine as required by the American Medical Records Association(AMRA).

Credit: 3

530-114 Medical Record Science 2

This course will include purposes of classifying diseases and operations, differences between nomenclature and classification, and the historical development of medical nomemclatures and classificiation systems. SNDO, both as nomenclature and as a classificiation system; ICDA, H-ICDA and other systems of classification; and the value of indexes and registers are emphasized. The classification systems and reference tools of various medical and health organizations are also discussed, as well as abstracting for computerization and microfiliming. This course will also include the study of vital and public health statistics; review of simple arithmetic principles as warranted; in-depth study of hospital statistics; sources, definitions, collection, reporting; presentation and analysis of data; sources and uses of health data in the United States.

Credit: 3

530-143 Human Anatomy & Physiology 2

The purpose of this course is primarily to teach the structure and form of the components of the circulatory, lymphatic, sense organs, reproductive, digestive and urinary systems by way of models, charts, dissection of cow's eyes and heart, transparencies, film, mink dissection, and microscopic examination of tissue; and the relationship of one structure to another.

The physiology, terminology and common abnormalities of a congenital, infectious, neoplastic, degenerative, traumatic, metabolic, emotional, hereditary, physical or chemical nature will be taught; conditions and terminology of obstetrics, neoplasms, surgery, radiology, anesthesia, laboratory, pathology and drugs.

Credit: 3

530-151 Legal Aspects of Medical Records

A study of the judicial system, including courts legal proceedings and laws rules and regulations; legal terminology; privileged and confidential information; legal consents; and mechanisms for releasing inforation. The importance of the Medical record as a legal document and the effect of confidential communications laws on the release of inforamtion is stressed. Emphasis is placed upon the proper release of information from the medical and the legal procedures involved in the court disclosure of medical record information. Included also are the legal aspects of hopital and medical staff organization.

Credit: 1

801-152 Communication Skills 2

Communication Skills 2 introduces the student to various forms of written communication. Emphasis is on forms of communication associated with the needs of the students in their immediate educational setting, in obtaining employment and in their career when they enter the work force. Reading activities direct the students to the trade journals of their special field. Considerable time is spent in preparing the students for job entry including assessing their interest, abilities, and needs in respect to career options available in their area of occupational preparation, investigating various sources of information about job opportunities and applying for and obtaining employment by various methods.

Writing assignments vary according to the needs of the occupational specialty of the students.

Credit: 3

107-117 Introducation to Data Processing

This course introduces the non-data processing specialist to the concepts of data processing, demonstrating the importance of data processing in the economy and exploring the vital role played by the computer. Major areas of instruction include the overview of the computer system -- computer equipment, media, and concepts; data representation; computer input and output devices; programming a computer; computer operation; and communications devices. Business applications such as payroll preparation, inventory control, sales analysis, and billing are studied.

Credit: 3

530-116 Medical Record Science 3

In this course, the student will study; trends in the health care delivery system, the problem-oriented medical record, the tumor registry, and the principles and the role of the supervisor in management, as well as health care legislation focusing on Utilization Review, Medicare-Medicaid, and Professional Standards Review Organization on the state and federal levels.

Credit: 3

530-122 Medical Records Directed Practice 2

In this course the student will pursue activities which will provide a transition from theory to application. The student will be expected to continue to perform the technical skills learned in Direct Practice 1 at a more proficient rate. In addition, he will be allowed to participate in the performance of duties related to Medical Care Evaluation,the Tumor Registry, and the Problem-Oriented Medical Record as the opportunity is presented. (at an affiliation site, 10 hours weekly).

Credit: 4

809-153 American Institutions

This course is a study of American social and political institutions as they affect the individual as a citizen and as a worker in business and industry. The students learn to recognize institutions as forces that control human behavior. They also learn the relationship between social and political institutions as well as the problems they must face as members of society. Topics considered are: social groups, culture, cultural changes, social control, problems of city living, problems of population, the family and marriage, religion, problems of education, and the American political system.

Credit: 3

530-124 Medical Records Directed Practice 3

As part of this course the student will spend two days weekly at an affiliation site. The student will perform all learned technical duties of medical record technology and have the opportunity to observe and perform Utilization Review procedures.

Credit: 4

530-134 Medical Records Seminar

Under the direction of a clinical supervisor during the last semester, the student will evaluate various technical problems and situations encountered in a medical record department of a health care facility. The student will have the opportunity to have practical experience for several consecutive weeks in a county general hospital and/or make consultant visits with a Registered Record Administrator to a health care facility.

Credit: 3

809-110 Economics

This is a basic course in economics focused on the study of economic concepts and facts related to the American economic system. The purpose of the course is to assist students in their desire to develop an awareness of economic principles and problems which can be related to everyday situations. Some topics examined are: what determines prices, how do we measure economic performance, how does our banking system function, some problems of the consumer, and some problems of labor.

Credit: 3

809-151 Psychology of Human Relations

Basic psychological principles are taught so that students may be better equipped to deal with those human relationships which they will face in future vocational and social situations. Stress is placed upon the application of the rules of mental hygiene to home and work situations. Group and personal adjustment problems are studied as they relate to the worker and the general community.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL RECORDS TECHNICIAN program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

English Language Arts

Developmental Writing

Psychology

Economics

Biology

Typewriting (I)

Computer Lit

Computer Prog

MEDICAL RECORDS TRANSCRIPTIONIST

The following course outline is representative of an educational program at any teaching hospital in the state of Wisconsin. Students are advised to consult the bulletins of the hospital of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE INFORMATION

On the job training will be on an individual basis at a teaching hospital in the state of Wisconsin.

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL RECORDS TRANSCRIPTIONIST program at any teaching hospital in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Biology

Typewriting (I)

Typewriting (II)

MEDICAL SECRETARY

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

Course Outline

First Year First Semester	Credit
Typewriting 1 106-131	3
Shorthand 1 106-111	4
Math for Business Analysis 105-105	3
Medical-Dental Terminology 1 510-133	3
Communication Skills 1 801-151	3
American Institutions 809-153	3
Orientation 809-100	0
	19

Second Semester	
Typewriting 2 106-133	3
Shorthand 2 106-113	4
Prin. of Health Insurance 105-173	2
Medical-Dental Terminology 2 510-134	3
Communication Skills 2 801-152	3
Elective	2
Orientation 809-100	0
	17

Second Year First Semester	
Typewriting 3 106-134	3
Medical Dictation & Transcript 1 106-118	4
Intro. to Accounting 101-110	4
Medical-Dental Records Mgt. 105-117	2
Medical Ethics - Legal 510-151	1
Psychology of Human Relations 809-151	3
Orientation 809-100	0
	17

Second Semester	
Medical Dictation & Transcript 2 106-119	4
Machine Calculation 103-161	3
Medical-Dental Office Procedure 106-153	3
Secretarial Machines 106-139	3
Economics 809-110	3

Second Year Second Semester cont'd	Credits
Elective	2
Orientation 809-100	0
	18

MEDICAL SECRETARY

COURSE DESCRIPTIONS

106-131 Typewriting 1

Basic course in the operation of the typewriter for students with no previous knowledge of typewriting. AVT (audiovisual-tutorial) lesson and drills instruct students to operate the keyboard by touch, to know the name, location, and function of the machine parts, to center copy vertically and horizontally on the page, to type letters, envelopes, memorandums, and simple manuscripts in the correct format. Speed and accuracy drills throughout the course develop typing proficiency of 30-45 wpm. Students with previous knowledge of typing are pretested and allowed to bypass lessons in the areas in which they are knowledgeable. Students complete the requirements of the course at their own speed.

Credit: 3

106-111 Shorthand 1

The theory of Gregg shorthand is covered completely in the first semester. Accuracy in applying the theories of Gregg Shorthand and in using the brief forms and phrases is emphasized. Speed in taking dictation is practiced to attain a minimum speed of 60 wpm transcribed with 5% or fewer errors for a grade of C. The student will practice reading fluently from shorthand notes individual progress, rather than uniform attainment by class period is the method used in presenting Shorthand 1.

Credit: 4

105-105 Mathematics for Business Analysis

Mathematics for Business Analysis is designed to equip the student with the mathematical skills and concepts necessary for solving problems on-the-job. The course will emphasize learning these skills and concepts through practical application.

Credit: 3

510-133 Medical-Dental Terminology 1

Students in this course will have preparation to become Word Technicians with the specialty of transcribing medical terms readily. They will have knowledge of resource material available, when this is needed, to supplement their basic medical terminonlogy vocabulary. The course is a study of terms relating to all areas of medical science, hospital service, and paramedical specialties. Special emphasis will be placed on word components, namely; prefix, suffix and root parts. Included also will be medical abbreviations.

Credit: 3

801-151 Communication Skills 1

Communication Skills 1 is an introduction to basic communication concepts related to the success and failure of oral communication and the nature of communicative situations, both on and off the job. Emphasis is on listening skills, nonverbal communication, problem-solving, and speaking to demonstrate and inform. Although Communication Skills 1 is not a prerequisite to Communication Skills 2, the sequence from oral to written forms of communication sets a pattern which allows the students to consider general communicative responsibilities expressed in the less complicated oral forms before they face the more technical tasks associated with written forms.

Credit: 3

809-153 American Institutions

This course is a study of American social and political institutions as they affect the individual as a citizen and as a worker in business and industry. The students learn to recognize institutions as forces that control human behavior. They also learn the relationship between social and political institutions as well as the problems they must face as members of society. Topics considered are: social groups, culture, cultural changes, social control problems of city living, problems of population, the family and marriage, religion, problems of education, and the American political system.

Credit: 3

106-133 Typewriting 2

Intermediate course for students with a basic knowledge of typewriting and a minimum typing rate of 30 wpm. AVT (audiovisual-tutorial) lessons review the basic keyboard, machine parts, and the techniques for tyepwriting. AVT presentations, drills, and typing problems with guidance by the instructor teach the student to complet more complicated typing applications and develop speed and accuracy in typewriting. Problems included are: Variations of the business letter, tabulation, business forms, reports, financial statements, and personal data sheets.

Credit: 4

106-113 Shorthand 2

Accurate interpretation of the shorthand notes is vital to developing a transcription skill which is to be acquired in Shorthand 2. Each student will develop a speed at taking dictation to their highest potential by an individual progress method of skill building. Emphasis will be placed upon producing accurate transcripts from shorthand notes. Spelling, voicabulary, grammar, and punctuation skills are improtant to accurate transcription of shorthand notes. Two, three-minute dictation timings with 95% accuracy are required at each speed to pass to the next level of attainment. Prerequisite: Shorthand 1

Credit: 4

105-173 Principles of Health Insurance

Designed for students desiring to pursue careers as medical or dental secretaries. The course content revolves around areas of concern to medical and dental secretaries. Emphasis is given to the various insurance forms that medical secretaries will have to complete. The students will be given a basic background on insurance in general and hospitalization types of insurance in particular, including government and privately sponsored plans.

Credit: 3

510-134 Medical-Dental Terminology 2

This course is a continuation of Medical-Dental Terminology 1. The student will continue to study terminology as it relates to the anatomical systems of the body. Stress is placed on use, spelling, and punctuation of medical and dental terms. Knowledge of anatomical structures of the body, common diseases and disorders, and diagnostic and therapeutic procedures.

Credit: 3

801-152 Communications Skills 2

Communication Skills 2 introduces the student to various forms of written communication. Emphasis is on forms of communication associated with the needs of the students in their immediate educational setting, in obtaining employment and in their career when they enter the work force. Reading activities direct the students to the trade journals of their special field. Considerable time is spent in preparing the students for job entry including assessing their interests, abilities, and needs in respect to career options available in their area of occupational preparation, investigating various sources of information about job opportunities and applying for and obtaining employment by various methods. Writing assignments vary according to the needs of the occupational specialty of the students.

Credit: 3

106-134 Typewriting 3

Advanced course for students with a job-entry level of typewriting skill. AVT (audiovisual-tutorial) lessons and drills develop students' skill to the high level required for specialized areas including statistical, legal, medical, governmental, and technical typing. Students' production rate is further developed and speed is developed to meet the requirement of 50-65 gross words per minute with 5 or less errors on a 5 minute time. Prerequisite: 106-133 Typewriting 2 or equivalent.

Credit: 3

106-118 Medical Dictation and Transcription

The course is designed for the potential medical office worker who may at times function as a stenographer in varying situations when the knowledge of shorthand as well as machine transcription may be needed. It will give the student practice in dealing with specialized shorthand outlines which are likely to be encountered in a dictation situation and used in preparing medical reports, case studies, and producing records in the place of employment. Correct transcription of medical terminology is emphasized. Prerequisite: Shorthand 2 and Medical Terminology.

Credit: 4

101-110 Introduction to Accounting

The complete bookkeeping cycle is covered, ranging from the original business transcation to the closing of books and the preparation of financial statements. Meets the bookkeeping requirements of tax regulations.

Credit: 4

105-117 Medical-Dental Records Mangement

This course teaches the process of classifying, arranging, and storing records as it relates to the medical-dental field. The twenty basic filing rules are taught. The filing systems covered include alphabetic, numeric, vertical and visible card filing, equipment and supplies, records control and retention, creating records systems, and evaluating records systems and personnel. Field trips are also included to enhance the learning process.

Credit: 2

510-151 Medical Ethics-Legal

This course is designed to help the student become aware of interpersonal relationships in the medical office. Personality attributes and ethics for the medical office worker are emphasized, as well as confidentiality of records.

Credit: 1

809-151 Psychology of Human Relations

Basic psychological principles are taught so that students may be better equipped to deal with those human relationships which they will face in future vocational and social situations. Stress is placed upon the application of the rules of metal hygiene to home and work situations. Group and personal adjustment problems are studied as they relate to the worker and the general community.

Credit: 3

106-119 Medical Dictation and Transcription 2

(A continuation of 106-118). This semester continues to build speed and accuracy in the transcription of medical communications.

Credit: 4

103-161 Machine Calculations

A complete course to develop competent operators of calculators and adding machines currently in use in business offices. A functional mastery of the ten-keyboard by touch is taught as the basis of mastery of all electric-mechanical and the new electronic calculators of this course. Included are the ten-key adding machine, the printing calculator, electronic printing calculators and electronic display calculators. AVT (audio-visual-tutorial) presentations under the guidance of the instructor train the student in the operation of the machines and their use in solving realistic business problems and applications. AVT is a total learning system designed for independent study. Students may enroll anytime during the school year, complete the entire course at their own pace, and may bypass lessons in areas of previous knowledge by pretesting.

Credit: 2

106-153 Medical-Dental Office Procedures

This course includes how to deal with patients, secretarial responsibilities, such as composing letters, maintaining files, and how to manage the office; financial and legal responsibilities, including billing the patient and health insurance; dealing with limited professional activities, such as scheduling meetings, typing reports, and make travel arrangments. It also includes a unit on the hospital secretary and the dental secretary.

Credit: 3

106-139 Secretarial Machines

Secretarial Machines is a terminal typing course and its purpose is to broaden the student's knowledge of machines he may be expected to use on the job. The student will learn to prepare a master and run copies on the spirit duplicator, offset, and mimeograph; learn to use an executive typewriter, magnetic card typewriter, composer typewriter, and the CPT typewriter; become familiar with a variety of small office machines; and increase their ability to do statistical and/or medical typing.

Credit: 3

809-110 Economics

This is a basic course in economics focused on the study of economic concepts and facts related to the American economic system. The purpose of the course is to assist students in their desire to develop an awareness of economic principles and problems which can be related to everyday situations. Some topics examined are: what determines prices, how do we measure economic performance, how does our banking system function, some problems of the consumer, and some problems of labor.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL SECRETARY program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

English Language Arts

Developmental Writing

Psychology

Typewriting (I)

Typewriting (II)

Shorthand (I)

Shorthand (II)

Office Practice

Economics

MEDICAL STENOGRAPHER

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

		CREDITS	
		1st Sem.	2nd Sem.
106-362	Medical Stenography I	3	
106-360	Medical Stenography Typewriting I, or	3	
106-170	Applied Typewriting I	3	
510-103	Body Structure	3	
509-180	Medical Terminology I	2	
509-113	Personal, Vocational Relationships (PVR)	2	
105-316	Records Management	2	
801-351	Communications I	2	
		17	
106-363	Medical Stenography II		3
106-361	Medical Stenography Typewriting II, or		3
106-171	Applied Typewriting II		3
509-181	Medical Terminology II		2
106-364	Medical Stenography Office Procedures		2-3
101-303	Applied Accounting - Business Mathematics		2
801-352	Communications II		2
103-355	Machine Calculation		1
	Elective		
			15-16

MEDICAL STENOGRAPHER

COURSE DESCRIPTIONS

106-362 Medical Stenography I

Development of medical shorthand vocabulary with dictation and transcription of medical material. Dictation range: 80 to 100 words per minute.

Credit: 3

106-360 Medical Stenography - Typewriting I

Consists of a review of business letters and forms common to all offices; introduces the student to the practice of typing actual medical letters and forms - case histories, consultation reports, operative records, discharge summaries, X-ray and EXG reports, preparing insurance forms, the preparation of abstracts and articles for medical journals, and typing minutes of medical meetings. There is emphasis of speed with control on ten-minute writings.

Credit: 3

106-170 Applied Typewriting I

Provides practicle application of typewriting to a specialized field. Develops speed and accuracy in technical terminology, forms, and procedures.

Credit: 3

510-103 Body Structure

This course is designed to provide an introduction to human body structure and function. Material about the normal and abnormal states of the body is presented along with basic concepts of body hygiene. The student should acquire knowledge of what the body parts are, what they do, how they work together and what happens when something goes wrong.

Credit: 0

509-180 Medical Terminology I

To help the student become familiar with medical terminology; to understand how medical terms are formed; to become familiar with the meaning of many word roots, prefixes, and suffixes; to be able to spell, define, and pronounce many medical terms through a thorough understanding of the word components; and to become skilled in the use of a medical dictionary.

Credit: 2

509-113 Personal, Vocational Relationships

Assists the student in adjusting to the personal and vocational relationships encountered in the career of medical assisting including an introduction to medical ethics; personal aspects include principles of grooming, etiquette and behavior as an employee. Vocational aspects include responsibilities toward assisting the physician, caring for the patient and cooperating with fellow employees.

Credit: 3

105-316 Records Management

Covers the basic principles of filing. Students learn rules by coding and filing cards alphabetically and studying methods of filing by using miniature letters and filing boxes. Methods included are alphabetic, variadex, numeric, and geographic.

Credit: 2

801-351 Communications I

This course is designed to improve the student's reading, writing, speaking, and reasoning skills through the review and application of language as communication. In some secretarial and stenographic sections emphasis is given to fundamentals of grammar and spelling.

Credit: 2

106-363 Medical Stenography II

A continuation of building of medical vocabulary and development of dictation speed with accurate, rapid transcription on a production basis. Dictation range: 100 to 120 words per minute.

Credit: 3

106-361 Medical Stenography - Typewriting II

A continuation of Medical Secretarial Typewriting I, 106-360. This course emphasizes production typing of medical letters and forms. The students are trained to transcribe medical material from machine dictation.

Credit: 3

106-171 Applied Typewriting II

A course in medical-office production typing including an introduction to machine transcription stressing medical terminology. The range of typing speed is from 35 to 55 words per minute and up on a 5-minute timing, with a maximum of 3 errors on general copy and 5 errors on medical copy.

Credit: 3

509-181 Medical Terminology II

Continuation of 509-180

Credit: 2

106-364 Medical Stenography Office Procedures

A study of the mail classifications, postal and telegraph services, and office etiquette. The responsibilities of the secretary for processing the office mail, and the handling of dictation procedures are covered. The principles of alphabetic, numberic, geographic, subject filing and records management are studied.

Credit: 3

101-303 Applied Accounting - Business Mathematics (Medical)

Assists the medical stenographer to handle effectively the business aspects of her position, such as billing, accounting, maintianing financial records and generally serving as a physician's bookkeeper. A review of the fundamental processes of arithmetic, fraction, decimals, percentage, and interest is applied to business problems dealing with bank reconciliations, payrolls, and income tax returns. The complete bookkeeping cycle is studied, and a model practice set for a doctor's office is completed with emphasis on actual payroll forms. Hospital inventory records are reviewed.

Credit: 2

801-352 Communications II

The second semester builds upon material covered first semester with practice in writing and in speaking applied to the content areas of short stories and mass media.

Credit: 2

103-355 Machine Calculation

For students not enrolled in the Business Machines Curriculum. Instruction is given on ten- and full-keyboard adding-listing machine and printing calculators.

Credit: 1

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL STENOGRAPHER program at a technical college in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Typewriting (I)

Typewriting (II)

Shorthand (I)

Shorthand (II)

Bookkeeping (I)

Office Practice

Biology

MEDICAL CLERK-TYPIST

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

GENERAL SUBJECTS		Credits
102-311	Business Communications I	2
102-312	Business Communications II	2
809-351	Human Relations	2
CLERK TYPIST MEDICAL REQUIREMENTS		Credits
106-331	Typewriting I*	3
106-335	Medical Typewriting	3
101-311	Accounting-Medical	2
103-330	Machine Calculation	3
509-303	The Human Body in Health & Disease I	2
509-327	The Human Body in Health & Disease II	2
509-318	Medical Terminology I	1
509-323	Medical Terminology II	1
102-302	Business Mathematics	3
106-342	Medical Office Procedures	2
102-315	Records Management	2
103-340	Office Duplication	1
106-330	Machine Transcription	3
	Total	34

*Student will be placed according to typewriting ability.

MEDICAL CLERK-TYPIST

COURSE DESCRIPTIONS

102-311 Business Communications I

Business students need maximum practice in oral and written communications and this course includes review of the mechanical features of correspondence, punctuation, capitalization and sylibication. Emphasis is also placed on spelling, vocabulary, and effective listening techniques.

Credit: 2

102-312 Business Communications II

The course is designed to give maximum practice in business letter writing common to the business community. Interviewing and employment applications also studied.

Credit: 2

809-351 Human Relations

This course includes a study of human behavior to promote the understanding of self and empathy for others as a basis for establishing satisfactory personal relationships in business and everyday living.

Credit: 2

106-331 Typewriting I

This is a course for beginners in typewriting. This course will teach the mastery of letters, numbers, and symbols of the keyboard by touch typewriting.

Credit: 3

106-335 Medical Typewriting

This course emphasizes various types of medical typing: individual doctor's office and hospital record forms, medical case histories, laboratory reports, and medical correspondence. Prerequisite: Typewriting I and Medical Terminology I.

Credit: 3

101-311 Accounting-Medical

An introductory course in accounting principles and bookkeeping procedures, it is designed to assist the medical assistant/secretary in keeping the financial records for a physician. The complete bookkeeping cycle is studied after which medical emphasis in financial recordkeeping is introduced.

Credit: 2

103-330 Machine Calculation

Machine Calculation is a survey course in the functional arithmetic processes and business applications to those processes on the 10-key, full key, and various electronic calculators. The student spends a sufficient amount of time on each machine to develop and understand the operations the machine will perform.

Credit: 3

509-303 The Human Body in Health and Disease I

The course will acquaint the student with the necessary fundamental knowledge of human body structure and function in health and disease, and enable the student to relate with a reasonable amount of intelligence, understanding and practical proficiency in the Health Occupations under the direct supervision of the physician and/or registered professional nurse.

Credit: 2

509-327 The Human Body in Health and Disease II

This course continues the study of the human body. Specific areas of physiology, growth and development, diet and nutrition, and disease disorders are included.

Credit: 2

509-318 Medical Terminology I

Medical Terminology is an orientation course to assist the student in developing a medical vocabulary. The student learns to recognize, spell, define and pronounce medical terms. A system of word building by learning word roots, prefixes and suffixes and methods of combining them is presented.

Credit: 1

509-323 Medical Terminology II

This course continues to assist the student in developing a medical vocabulary. It is closely correlated with the Human Body in Health and Disease sections.

Credit: 1

102-302 Business Mathematics

This course is for business majors and includes the fundamentals of addition, subtraction, multiplication and division of whole numbers, decimals, and fractions. Emphasis is on understanding the principles involved and their application to business problems as provided through word problems, business forms, and other simulated business mathematics problems.

Credit: 3

106-342 Medical Office Procedure

A practical working knowledge of desirable office procedures is provided. Units of instruction include the essentials of recordkeeping, processing mail, billing and collections, public relations, office management, insurance, appointment scheduling, telephone procedures, and medical laws and ethics.

Credit: 2

102-315 Records Management

In this 12-week course, the subject of filing is discussed. Filing is made up of three distinct units and a thorough knowledge of filing includes completion of all units. The unit course in alphabetical filing consists of the study of filing rules and their application, cross indexing and the theory and evaluation of correspondence filing. The unit course in numeric filing includes work in the numeric systems. Other topics are those which give instruction in the geographic, subject, and soundex methods.

Credit: 2

103-340 Office Duplication

Instruction is provided to give students an adequate working knowledge of the operation and care of various duplicating and copying machines used in modern business. Emphasis is placed on planning, layout and accuracy of the master copy. Instruction is given in the stencil, offset, and liquid duplicating processes.

Credit: 1

106-330 Machine Transcription

Instruction is given on transcribing machines with dictated material available in various business and professional areas. Established procedures as found in modern offices are emphasized. Timed exercises are given periodically to check the student's progress. Prerequisite: Typewriting I.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL CLERK-TYPIST program at a technical college in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Typewriting (I)

Typewriting (II)

Biology

Bookkeeping (I)

Business Law

Office Practice

HEALTH SERVICES MANAGEMENT

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HEALTH CARE ADMINISTRATOR

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

CORE COURSE OUTLINE

I. Core courses in Business Administration

	Credits
Accounting I 201	3
Accounting II 202	3
Business Statistics 202	3
Business Law I 305	3
Principles of Finance 320	3
Management Principles & Practice 340	3
Personnel Management 345	3
Policy Formulation & Administration 449	3
Introduction to Business Data Processing 140	3
Business Communications 305	3
Econ 111 and General Econ 112	6
Electives	5
	41

II. Core courses in the health care component

Sciences	Credit
General Zoology 104	4
Microbes and Man 192	3
Human Nutrition 196	3
General Chemistry 103	5
Survey of Biochemistry 152	5
Social Sciences	
General Psychology 100	3
Introduction to Sociology 101	3
Contemporary Social Problems 142	3
Aging and the Aged 315	3
Group Dynamics 321	3
Allied Health	
Public Health Programs 215	3
Epidemiology 450	3
Public Health Administration 470	3
Medical Terminology 260	3
	47

III. Other required courses

	Credits
English 110 or 101-102 English Composition	5-6
Principles of Speech 202	3
Electives in Humanities	9
Physical Ed (Activities)	2
	19-20

IV. Health Care Administration Practicum

	Credits
Applicable Standards of Environmental Health & Safety 401	4
Local Health & Safety Regulations 402	1
General Administration 403	2
Psychology of Patient Care 404	3
Principles of Patient Care 405	1
Principles of Medical Care 406	6
Department Organization & Management 407	6
Personal & Social Care	3
Therapeutic & Supportive Care & Service in Long-Term Care 409	4
Community Interrelationship 410	2
	32

Program

The student spends six semesters and one summer session on campus completing all of the required courses. All other components of this major (required courses and General Studies courses) must be completed before the student enrolls in the practicum. The practicum consists of 34 semester hours (two semesters) taken in an affiliated health care institution.

HEALTH CARE ADMINISTRATOR

CORE COURSE DESCRIPTIONS

201 Principles of Accounting I

Recommended for sophomores, but should be taken by freshman accounting majors. Elementary principles and practices of accounting applied to the sole proprietorship type of organization.

Credit: 3

202 Principles of Accounting II

Prerequisite: Accounting 201. Continuation of Accounting 201, with emphasis on partnerships, corporation accounts and records (an introduction), fundamentals of manufacturing cost procedures, and analysis techniques used in management decisions.

Credit: 3

202 Business Statistics

Probability and statistics applied to business problems; frequency and probability distributions, mean and variance, normal distribution, hypothesis testing, linear regression and correlation.

Credit: 3

305 Business Law I

Prerequisite: Junior student. Principles of American Legal System, law of contracts, agency, negotiable instruments, and bailments.

Credit: 3

320 Principles of Finance

Prerequisite: Econ 111 and 112, Accounting 202, and Bsad 202 or Math 245. Study of the techniques used to make investment, financing, and dividend decisions in order to maximize the value of the firm to its owners. Topics include financial planning and control.

Credit: 3

340 Management Principles and Practices

Prerequisite: Econ 111 and 112, Accounting 202, and Bsad 202 or Math 245, or consent of instructor. Management functions of planning, organizing, directing, staffing, and controlling.

Credit: 3

345/545 Personnel Management

Prerequisite: Bsad 340. Policies and practices relating to recruitment, selection, development and utilization of human resources.

Credit: 3

449 Policy Formulation and Administration

Prerequisite: All other courses in Basic Business Core. Management planning and policy formulation with emphasis on decision-making. An overall view of company objectives, organizations, and operation, and the coordination of these activities.

Credit: 3

140 Introduction to Business Data Processing

An overview of data processing systems: what management must consider in installing a computer system, basic programming techniques, including flowcharting and an introduction to COBOL programming.

Credit: 3

305 Business Communications

The basic art and psychology of organizational oral and written communication, including report writing, correspondence, and communication research techniques. Also devoted to simulating a business organization.

Credit: 3

111 General Economics: Overall Performance, Problems & Policy

Theory of aggregate income determination in American economy, with consideration of related problems, policies and institutions.

Credit: 3

112 General Economics: Markets and Economic Well-being

Meets Wisconsin statutory cooperative requirements. In the context of contemporary economic issues, product and resource markets are analyzed with respect to pricing decisions, efficiency and equity.

Credit: 3

104 General Zoology

The anatomy, physiology, embryology, and heredity of animals. With emphasis upon vertebrates, especially man, pig, and frog.

Credit: 4

192 Microbes and Man

Survey of the impact of microorganisms on man; emphasis on ecology, diseases, and industrial processes.

Credit: 3

196 Human Nutrition

Makeup, digestion, functions, and utilization of nutrients. Scientific, sensible, satiating ways of meeting requirements.

Credit: 3

103 General Chemistry

Proficiency with algebraic operations is expected. Principles of chemistry. Laboratory work is quantitative with unknowns for most experiments.
Credit: 5

152 Survey of Biochemistry

Prerequisite: Chemistry 103 or 111. Introductory organic chemistry and a survey of the structure, chemical reactivity and biological activity of materials having biological origin (includes metabloism).
Credit: 5

100 General Psychology

Human Behavior, learning, thinking, motivation, perception, emotion, behavior disorders, personality, psychological tests, social behavior, and selected applications of psychology.
Credit: 3

101 Introduction to Sociology

Human social behavior, social structures, interaction, culture and personality, institutions, and social change. Credit: 3

142 Contemporary Social Problems

Identification of causes of social problems, using selected approaches. Evaluation of programs designed for their solution.
Credit: 3

315 Aging and the Aged

Opportunity to understand aging, its problems, effects on society, and needs of the aged.
Credit: 3

215 Public Health Programs

Voluntary and involuntary health programs on the local, state, federal, and world level. Emphasis given to environmental health programs and their incorporation into the total health system.

Credit: 3

450/650 Epidemiology

Prerequisite: Permission of instructor. Methods used to determine prevalence and incidence of disease in the population. Factors and microorganisms that cause, contribute to, or prevent disease.
Credit: 3

470 Public Health Administration

Prerequisite: Senior Student and Enph 430 or equivalent. Public health administrative organization; federal, state, and county public health regulations, organization, advisory functions, enforcement procedures and educational services.

Credit: 3

260 Medical Terminology

Medical, scientific, and specialized terminology from Greek and Latin sources. A study of roots, word elements, word formation, and analysis.

Credit: 3

101 English Composition

Preassignment by Department office. Study of the general principles of the writing process and development of writing skills.

Credit: 3

102 English Composition

Prerequisite: English 101 Continuation of English 101 involving more advanced rhetorical principles; practice in gathering and expressing ideas including the writing of the documented paper.

Credit: 3

110 English Composition

General Studies requirement in Communication Skills. Development of basic skills evolving from reading and discussion of various kinds of writing; practice in gathering and expressing ideas, including the writing of the documented paper.

Credit: 5

202 Fundamentals of Speech

History, principles, topics of speech communication; preparation, presentation, and evaluation of student speeches.

Credit: 3

401 Applicable Standards of Environmental Health and Safety

Prerequisite: Senior student, (junior student with permission of instructor) consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board Hygiene and sanitation training for administrator trainees of long-term health care institutions.

Credit: 4

402 Local Health and Safety Regulations

Prerequisite: Senior student (junior student with permission of instructor), consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board, Local health and safety regulations for administrators of long-term health care facilities.

Credit: 1

403 General Administration

Prerequisite: Senior student (junior student with permission of instructor), consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board General administration for long-term health care administrator trainees.

Credit: 2

404 Psychology of Patient Care

Prerequisite: Senior student, (junior student with permission of instructor), consent of chairman recommendation by Wisconsin State Nursing Home Administrators Examining Board. Psychology of patient care for administrtor trainees of long-term health care facilities.

Credit: 3

405 Principles of Patient Care

Prerequisite: Senior student (junior student with permission of instructor), consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board. To develop an understanding of the rights, portection, and services available to the patient who is a client of a long-term health facility.

Credit: 1

406 Principles of Medical Care

Prerequistie: Senior student (junior student with permission of instructor), consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board. Introduction to the principles of medical care in long-term health facilities.

Credit: 6

407 Department Organization and Management

Prerequisite: Senior student, (junior student with permission of instructor), consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board. Deparmental organization and management for long-term health care administrator trainees.

Credit: 6

408 Personal and Social Care

Prerequisite: Senior student (junior student with permission of instructor), consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board. Personal and social care for long-term health care administrator trainees.

Credit: 3

409 Therapeutic and Supportive Care and Service in Long-Term Care

Prerequisite: Senior Student (junior student with permission of instructor), consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board. Therapeutic and supportive care and service in long-term health care facilities.

Credit: 4

410 Community Interrelationship

Prerequisite: Senior student (junior student with permission of instructor), consent of chairman, recommendation by Wisconsin State Nursing Home Administrators Examining Board. Community interrelationship of long-term health care administrator trainees.

Credit: 2

The following is a list of High School courses that are recommended to prepare fully for the Health Care Administrator Program at any college or university in Wisconsin. See Appendix I for course descriptions.

- English Language Arts
- Developmental Writing
- Writing Seminar
- Bookkeeping (I)
- Bookkeeping (II)
- Business Law
- Biology
- Chemistry
- Economics
- Psychology
- Sociology
- Computer Lit
- Computer Programing

MEDICAL OFFICER, MID-MANAGEMENT

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for the list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Semester		Credit
101-110	Accounting I	4
102-118	Business Administration Career Development	2
105-101	Mathematics of Business	3
108-110	Administration & Organization of Health Care	3
801-150	Communicatons Skills I	3
809-153	Psychology of Human Relations	3
		18

Second Semester		
101-120	Accounting II	4
102-121	Medical Ethics and Law	3
108-120	Medical Terminology	2
801-160	Communications Skills II	3
809-151	Economics	3
	Elective	3
		18

Third Semester		
101-135	Medical Cost Accounting	3
108-130	Health Card Management Procedures	4
107-101	Principles of Data Processing	3
302-101	Diets & Food Preparation	2
809-150	American Institutions	3
		15

Fourth Semester		
101-145	Medical Financial Management	3
102-134	Internship or	3
102-140	Field Study	
104-161	Principles of Insurance	3
108-140	Medical Records, Systems, & Procedures	2
108-141	Environmental Health & Safety	2
	Elective	3
		16

MEDICAL OFFICER, MID-MANAGEMENT

COURSE DESCRIPTIONS

101-110 Accounting I

The basic structure of modern accounting is introduced. Concepts and general principles integrated with practical applications in the complete accounting cycle with respect to a single proprietorship service or mercantile enterprise. Some of the topics emphasized are: jounalizing, posting, accounting statements, adjusting and closing enteries, accruals, depreciation, and voucher system.

Credit: 4

102-118 Business Adminstration Career Development

The student meets with his major instructor to discuss the career opportunities in the medical administration area. Through these conferences, the student develops a training plan commensurate with his job background and abilities. An opportunity is given to the student to evaluate his self-image and to capitalize on his personal strengths in the development of his leadership capabilities.

Credit: 2

105-101 Mathematics of Business

Arithmetic and algebraic operations are reviewed and strengthened with emphasis on facility and accuracy in figuring. Emphasis is placed on financial problems including the following: trade and cash discount, simple interest, bank discount, installment purchases, merchandising mathematics, inventory costing and turnover, depreciation, distribution, payroll, taxes, compound interest, and annuitiies.

Credit: 3

108-110 Administration & Organization of Health Care

This course introduces the student to the organization and structure of health care facilities. The fundamental characteristics and problems associated with the operation and management of health services and departmental functions are explored.

Credit: 3

801-150 Communication Skills I

The student is introduced to the principles of human communication - the study of the relationships between thought, words, and actions. The student examines the process of communication along with various barriers to communication to provide a sound basis for further development of his communication skills. Other aspects of this study include non-verbal communication, logic of language, argumentation, and the mass media. The student also prepares and delivers speeches.

Credit: 3

809-153 Psychology of Human Relations

Basic psychological principles are taught so that the student may be better equipped to deal with those human relationships which we will face in future vocational and social situations. Stress is placed on motivation; the "why" of our behavior, in home, work, and social situations. Group and personal adjustment problems are studied and discussed.

Credit: 3

101-120 Accounting 2

Subject matter includes organization of the corporation, types and classes of capital stock, earnings and dividends, bonds, sinking funds, amortization of bond premium and discount, intangible assets, manufacturing accounts, statements of a manufacturing concern, adjusing and closing entries, consolidated financial statements and statement analysis. Prerequisite: 101-110.

Credit: 4

102-121 Medical Ethics & Law

This survey of medical ethics examines law as a key to personal justice, business stability, and social responsibility. Students examine the extent of governmental power to regulate business, special health regulations and their backgrounds, the problems and methods of administration, and the impact of regulation upon health care operations.

Credit: 3

108-120 Medical Terminology

This course places the meducal terms of structures, physiology, diseases, anomalies, and surgeries in the proper context in the body's anatomical systems. Emphasis is placed on proper spelling, pronunciation, and use of medical terms.

Credit: 2

801-160 Communication Skills 2

Using specialized forms of written and oral communication, the development of independent thinking is emphasized in this course. Discussion techniques, business writing, and business letters provide foundations of expanding communication skills into artistic communication. The combined courses, Communication Skills 1 and 2, are designed to help the student get a job and to live the life that the job supports. Prerequisite: 801-150.

Credit: 3

809-151 Economics 1

Economic principles underlying human wants and their satisfaction are studied in this course. Current local, state, national, and international problems (such as inflation, unemployment, taxes, pollution, ecology, urban blight, and welfare) are used to illustrate these principles. Important topics considered include consumption, investment problems, gross national product, value, price, monetary and fiscal policy, and contemporary economists. As a result of this course, each student should increase his chances for success, not only with employment, but also in the other daily living activities that are part of our political, social, and economic systems.

Credit: 3

101-135 Medical Cost Accounting

The course is designed to improve students accounting and bookkeeping skills in nursing homes and hospitals. The complete accounting cycle is covered as well as use of all the special hopsital journals and ledgers required to prepare the monthly financial statements, issue payroll and general disbursement checks, prepare the necessary tax forms, and learn the procedures in accounting for plant inventory items. A comprehensive study is made of the cost finding methods and procedures for allocating costs. An introduction to budgeting concepts is presented along with methods of forecasting and comparing actual costs with the estimated figures. Prerequisites: 101-120.

Credit: 3

108-130 Health Care Management Procedures

This course is designed to prepare students to work in supervisory and management positions in health care facilities. The student learns about the elements of effective supervision and management. Furthermore, the functions of planning, organizing, staffing, influencing, and controlling as they apply to health care facilities are stressed. Labor relations and managerial issues are also studied.

Credit: 4

107-101 Principles of Data Processing

The course is an introduction to the field of data processing for non-data processing majors, acquainting students with techniques of management and user department of computer equipment service. The course includes discussion on application studies, procedure development, coding methods, card design, processing media, and functional principles of that service provided by the data processing departments in business and industry.

Credit: 3

301-101 Diets & Food Preparation

A study of nutrient requirements, their functions and sources, with an emphasis on interrelationships and application to food selection for patients in health care institutions. Students learn food preparation techniques, menu-planning, and the use of modern equipment in quantity food preparation.

Credit: 2

809-150 American Institutions

This is a study of the origin and continuity of social and political institutions in America. Relevant social and political institutions are studied because they are the end product of the creative process of society and the servant of its values.

Credit: 3

101-145 Medical Financial Management

This course emphasizes the uses of accounting records and the problem-solving functions of accounting in relation to current planning and control, performance evaluation, long-range planning, budgets, and cost-volume profit relationships. Prerequisites: 101-110, 101-120, 101-135.

Credit: 3

102-134 Internship

The student elects an internship-cooperative situation in health services in the area of his major. The student proceeds under the supervision and approval of his major instructor.

Credit: 3

102-140 Field Study

The student concentrates his full energies on the research project of his choice, selecting the health services area of major interest. He uses all knowledges gained in allied courses to prepare a major project which will be useful in gaining employment and success in the field of his choice.

Credit: 3

104-161 Principles of Insurance

The student is introduced to the basic concepts of risk management as they apply to the health field. The basic principles of health insurance, medicine, and insurance required by health care facilities are studied.

Credit: 2

108-140 Medical Records, Systems, and Procedures

An introduction to medical office, nursing home, and hospital record systems. The study includes the legal and ethical considerations in completeness and accuracy of records, their preservation, and the release of information. Various systems and procedures used in the processing of medical business information are studied. These include systems charting, work measurement, work simplification, forms design and control, institutional manuals, job descriptions, work sampling, and suggestion plans. Actual health care situations are analyzed, and recommendations are made for their improvement.

Credit: 2

108-141 Environmental Health & Safety

A wide range of environmental and safety problems related to health care facilities will be discussed and analyzed. The focus will be on understanding the problems and synthesizing the various decision-making impacts on the operation of the entire facility.

Credit: 2

The following is a list of high school courses that are recommended to prepare fully for the MEDICAL OFFICER, MID-MANAGEMENT program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Economics

Algebra

Computer Literacy

Bookkeeping (I)

Business Law

Environmental Science

WARD CLERK

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year	Credits
Basic Health & Medical Terminology 510-370	2
Health - Organization & Function 510-378	1
Ward Clerk Skills 510-343	3
Personal Development 104-175	1
Communications for Health Occ. 801-354	1
Typewriting 1 106-131	3
Fundamentals of Human Relations 809-330	1
Ward Clerk Practicum 510-344	5
Ward Clerk Seminar 510-345	1
Personal & Vocational Relationships 510-315	1
Orientation 809-300	1

WARD CLERK

COURSE DESCRIPTIONS

510-370 Basic Health & Medical Terminology

This course is designed to convey the concept of positive health. The study of each body system will include its function, the diseases associated with its malfunction, the methods of diagnosis, treatment, and prevention of these diseases. Emphasis will be on the terminology associated with the above.

Credit: 2

510-378 Health Organization & Function

This course gives a comprehensive overview of the place and function of present day health facilities in relation to a ward clerk's responsibilities. These are services located within the hospital, as well as the community.

Credit: 1

510-343 Ward Clerk Skills

The student is introduced to the use of various types of communication media, transcription of orders, charting responsibilities, forms and procedures for carrying out doctors' orders. Completion of routine records and reports, as well as acquiring skills needed for receptionist duties, are included.

Credit: 3

104-175 Personal Development

This course covers areas of personal development such as health, grooming, values and attitudes, clothing selection, interpersonal relationships, socially and professionally, and management of time, Designed for career persons to help them become more attractive and more interesting individuals. To help and assist them to learn how to hanlde themselves in the business world.

Credit: 1

801-354 Communications for Health Occupations

The course is designed to meet the needs of students as they use communication skills in school and in the hospital situation. Opportunities are provided for the student to cultivate efficient reading habits, effective listening skills, understanding of nonverbal communication, and ease in speaking as they directly relate to their profession. Communication concepts are examined as they relate to nurse-patient communications as well as employee relationships and employee-employer communications.

Credit: 1

106-131 Typewriting 1

Basic course in the operation of the typewriter for students with no previous knowledge of typewriting. AVT (aduiovisual-tutorial) lessons and drills instruct students to operate the keyboard by touch, to know the name, location, and function of the machine parts, to center copy vertically and horizontally on the page, to type letters, envelopes, memorandums, and simple manuscripts in the correct format. Speed and accuracy drills throughout the course develop typing proficiency of 30-45 WPM. Students with previous knowledge of typing are pretested and allowed to bypass lessons in the areas in which they are knowledgeable. Students complete the requirements of the course at their own speed.

Credits: 3

809-330 Fundamentals of Human Relations

This course involves a study of the basic principles of psychology that will aid the students in understanding the human relationships they will face in the future in their nursing occupation as well as in their social situations. Motivation, feelings, and emotions, attitudes, and learning are considered with particular emphasis on their application to the on-the-job problems. Attention is also given to personal and group dynamics so that the students may learn to apply the principles of mental hygiene to their adjustment problems as workers and as members of the general community. Credit: 1

510-344 Ward Clerk Practicum

The student is provided actual experience in health agencies. Each student works with an agency-employed Ward Clerk under the supervision of the instructor.

Credits: 5

510-345 Ward Clerk Seminar

The student is given an opportunity to review and continue study of body structure, diseases and their treatment, and related terminology. Procedures related to the role of the ward clerk will be reviewed. Students share learning experiences with the entire class.

Credit: 1

510-315 Personal & Vocational Relationships

This course is designed to assist the student in acquiring a basic understanding of basic legal aspects as it relates to health occupations. The course also includes meeting the religious needs of the patient and the history of nursing.

Credit: 1

The following is a list of high school courses that are recommended to prepare fully for the WARD CLERK program at any technical college in the state of Wisconsin. See Appendix I for course description.

Biology

Psychology

English Language Arts

Typewriting (I)

MEDICAL SERVICES

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EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC)

The following course outline is representative of an educational program at any teaching hospital in the state of Wisconsin. Students are advised to consult the bulletins of the hospital of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE INFORMATION

Presently only fire fighters and police officers are being trained at Madison General Hospital, Milwaukee County General Hospital and St. Elizabeths Hospital in Appleton Wisconsin.

The following is a list of high school courses that are recommended to prepare fully for the EMERGENCY MEDICAL TECHNICIAN (PARAMEDIC) in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Biology

Chemistry

Advanced Algebra

MEDICAL ASSISTANT

The following course outline is representative of an education program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester	Credits
MAsst 101 Orientation, Personal Adjustments and Community Relationships	1
MAsst 150 Microbiology	3
MAsst 150 Assisting Techniques and Terminology	3
SecSci 135 Medical Secretarial Typewriting	2
SecSci 142 Medical Office Procedures	3
Eng 151 Communication Skills 1	3
SocSci 151 Psychology of Human Relations	3
	18

Second Semester	
MAsst 113 Legal Aspects and Employment Practices	1
MAsst 155 Medical Laboratory Assisting Techniques	4
MAsst 165 Clinical and Office Practice	3
BAdm 116 Medical Records Management	3
SecSci 138 Machine Transcription	1
Eng 152 Communication Skills 2	3
NatSci 138 Body Structure and Function	3
	18

MEDICAL ASSISTANT

COURSE DESCRIPTIONS

101 Orientation Personal, Adjustment, and Community Relationships

Principles of ethics are reviewed. Promotion of good personal, occupational, and community relationships is stressed. Good health, etiquette, and grooming habits are emphasized and applied. Guides to effective study, working, living habits are also included to aid the student in her adjustment to school, home, and work. Students are introduced to the medical assistant associations with the hope that graduates will become active members, progress educationally and develop job satisfaction.

Credit: 1

150 Microbiology

The student acquires fundamental knowledge of basic microbiology plus a general understanding of laboratory methods used to study the various pathogenic microorganisms. Emphasis is placed on morphology, methods of laboratory cultivation, and study of the more common pathological microorganisms. Prerequisites: MAsst 101 and 160.

Credit: 3

160 Assisting Techniques and Terminology

A general course presenting theory and planned student activity in semitechnical medical and nursing techniques and skills. Emphasis is placed on the social, scientific, and clinical principles basic to successful performance of the duties of the medical technical assistant. A study of related medical terminology is included. Prerequisite: MAsst 101 or concurrent registration in MAsst 101.

Credit: 3

135 Medical Secretarial Typewriting

Designed to provide students with a practical background of medical typing. Emphasis is placed upon the spelling of medical terms, and the formats of case histories, articles, letters, and insurance forms as they are used in the various specialities of the medical field. Prerequisite: SecSci 133 or departmental approval.

Credit: 2

142 Medical Office Procedures

A practical working knowledge of desirable office procedures is provided. Units of instruction include the essentials of record keeping, processing mail, billing and collections, public relations, and office management.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emontion, preception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

113 Legal Aspects and Employment Practices

The physician's code of ethics is reviewed. Emphasis is placed on the medical assistant's ethical responsibilities, as she is bound by the same code. Medical assistant bylaws and necessary preparation to qualify for the certification examination are studied. Legal aspects and responsibilities are studied as they relate to the medical practice and to the patient and his family. Guest speakers acquaint the student with community health services and employment opportunities. Prerequisites: MAsst 101, 150, and 160.

Credit: 1

155 Medical Laboratory Assisting Techniques

A combined lecture and laboratory course in which competency is developed in the performance of generally accepted, routine office laboratory tests. Instruction is given in the theory necessary to make such performance more effective as well as to improve that of other semitechnical medical activities ordinarily performed under the supervision of physician. Prerequisities: MAsst 150 and 160 (or concurrent registration in MAsst 160).

Credit: 4

165 Clinical and Office Practice

Opportunity to observe and assist in a doctor's office, clinic, or hospital under the supervision of qualified personnel, is provided. Following the experience gained in the clinic, office, or hopsital, reports are given by each student and the experiences are discussed. Attention is given to duties performed, problems encountered, and types of learning experiences provided. Related theory in the areas of health and disease is presented. Guest lecturers are invited to participate in this phase of the program. Prerequisities: MAsst 155(or concurrent registration in MAsst 155), MAsst 160, and Sec Sci 142

Credit: 3

116 Medical Records Management

A study is made of the ways in which medical records are compiled and used. The rules of alphabetic indexing and filing and their application are studied, along with five main systems of arranging correspondence - alphabetic, numeric, terminal digit, geographic, and subject - and the procedures used with these filing systems. Soundex filing and ICDA, a system of classfying diseases and operations, are surveyed.

Credit: 3

138 Machine Transcription

Instruction is given on transcribing machines with dictated material available in various business and professional areas. Established procedures as found in modern offices are emphasized. Timed exercises are given periodically to check the student's progress. Prerequisite: SecSci 133.

Credit: 1

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

138 Body Structure and Function

A survey of normal structure and function of the human body. Some structural anomalies and functional dysfunctions are discussed. Laboratory exercises are performed for a better understanding of the structure and function of the human body. Prerequisite: One year of high school biology or general science.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for a MEDICAL ASSISTANT program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

- Biology
- English Language Arts
- Developmental Writing
- Psychology
- Typewriting (I)
- Office Practice

PHYSICIAN

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

PRE-MEDICAL

GENERAL INFORMATION

The absolute requirements of medical schools are generally very limited to allow you latitude for developing your undergraduate program. Most medical schools have the following requirements:

Biology: One year of general college biology, including adequate laboratory experience. Additional courses in cell physiology, vertebrate anatomy and genetics are recommended. Histology, human anatomy and similar courses which are in the medical school curriculum are not recommended.

Chemistry: Two years of college chemistry including laboratory. One year must be in organic chemistry. In addition, quantitative analysis, physical chemistry and biochemistry are recommended.

Physics: One year of college physics, including laboratory.

English: One year of college English which stresses composition. Additional English is strongly recommended.

Mathematics: Two years of algebra and one semester of analytical geometry (high school or college level). Differential and integral calculus are recommended.

The majority of pre-med students elect to major in one of the sciences; biology or chemistry are the most frequently chosen. However, you should feel free to choose any major in which you have interest and ability. Thus it is possible to major in a non-science field as long as the basic science requirements described above are met. It should be remembered, however, that since much of medicine has its foundation in the sciences, the student who elects a non-science field must excel in the required science courses to assure himself of adequate preparation and favorable consideration by medical schools.

Since pre-med students most frequently elect a biology or chemistry major, suggested course sequences for these areas are given here to help you plan your program.

The chemistry major curriculum satisfies all medical school requirements except those in biology. The minimum biology requirements are Introductory Biology (Bio 1) Principles of Biological Investigation - a laboratory course (Bio 90), and the Molecular Basis of Biology (Bio 100). It is recommended that Biology 1 and 90 be taken in the first and second semester of the freshman year. Therefore, General Physics I and II should be postponed until the second or third year. Biology 100 should be taken in the second semester of the sophomore year.

It is also recommended that Cell Biology (Bio 135) and Genetics (Bio 125) be taken in the first and second semesters of the junior year. These additional biology courses are frequently recommended as electives by many medical schools.

The following course sequence is recommended for chemistry majors:

FRESHMAN YEAR

General Chemistry I
Modes of Discourse I
Calculus I
General Physics I

General Chemistry II
Modes of Discourse II
Calculus II
General Physics II
Philosophy of Man

SOPHOMORE YEAR

Organic Chemistry
German/Russian
Calculus III
History of Western Civilization I
Literature

Organic Chemistry
Quantitative Analysis
German/Russian
History of Western Civilization II
Literature

JUNIOR YEAR

Quantitative Analysis
Physical Chemistry
Theology
German/Russian
Ethics

Physical Chemistry
Physical Chemistry Lab
German/Russian
Theology
Philosophy

SENIOR YEAR

Inorganic Chemistry
Philosophy
Social/Behavioral Science
Physical Chemistry Lab
Theology

Chemistry elective
Literature/Fine Arts
Liberal Arts electives

The biology curriculum includes, along with its cognate chemistry, physics, and math requirements, all of the prerequisites necessary for application to most medical schools in the United States and foreign countries. The course schedule that follows provides for minimum difficulties in meeting the various requirements for the biology major and the University liberal arts requirements.

FRESHMAN YEAR

General Biology
General Chemistry I
Modes of Discourse I
History of Western Civilization I
Language/Social Science

Calculus I
General Chemistry II
Modes of Discourse II
History of Western Civilization II
Language/Philosophy

SOPHOMORE YEAR

Principles of Biological Investigation
Organic Chemistry I
Language
Mathematics/Computer Science/Logic

Molecular Biology
Organic Chemistry II
Language
Literature
Theology

JUNIOR YEAR

Cell Biology
Biology/Chemistry elective
Physics I
Language/elective

Genetics
Biology Chemistry elective
Physics II
Language/elective
Ethics

SENIOR YEAR

Environmental Biology
Biology elective
Philosophy
Theology

Biology electives
Philosophy
Theology
Literature/Fine Arts
Liberal Arts Elective

The following is a list of High School courses that are recommended to prepare fully for the PRE-MEDICAL program. See Appendix I for course descriptions.

Biolgoy

Advanced Biolgoy

Chemistry

Advanced Chemistry

Physics

English Language Arts

Developmental Writing

Writing Seminar

Advanced Algebra with Trigonometry

Advanced Math

Psychology

Sociology

German (I)

German (II)

German (III)

OSTEOPATH

The state of Wisconsin has no college or university that offers a degree in osteopathy. The following pre-osteopathy outline was obtained from a college or university outside the state of Wisconsin that does offer such a program. It is the responsibility of each student to investigate the policy of the college of their choice for specific course requirements. It is imperative to check also the specific policies regarding academic requirements of admission.

COURSE OUTLINE

PRE-OSTEOPATHY

Students who intend to apply for admission to a professional school in osteopathy must pursue a double major: the first a B.S. or B.A. degree major in an appropriate field such as biological sciences (or sub-discipline), chemistry, or psychology, and a second major in pre-osteopathy as outlined below.

The following courses which constitute this major meet the minimum entrance requirements of most of these professional schools. An undergraduate degree, with a major as outlined below is required by almost all medical colleges.

Course Requirements:	Hours
Biology 10130, 10532, 20518, 40430*, 40518	23
Chemistry 10060, 10061, 10062, 10063, and 10064; 20481, 20482, and 20483 or 30481, 30482, and 30483; 30475, 30476, 30477	30
Mathematics 12001, 12002	10
Physics 13001, 13002, and 13003 or 23101, 23102, and 23103	15
	78

*The prerequisite of Biology 10231 is waived.

Some medical schools may also require the following strongly recommended courses: Biology 30156, Chemistry 30111, 30112, 30113, Mathematics 12003. Distributive requirements in the Social Sciences should be taken in the Behavioral Science area.

PRE-OSTEOPATHY

COURSE DESCRIPTIONS

10130 Biological Concepts

Beginning course in biology primarily for biology majors. Basic biological principles at the molecular, cellular, organismal, population, and ecosystem levels of organization.

Credit: 4

10532 Principles of Zoology

Biology of animals for biology majors. Comparison of adaptive mechanisms of the major groups of animals. Prerequisite: Biol 10130.

Credit: 4

20518 Vertebrate Anatomy

Prerequisite: Biol. 10532 or 10062.

Credit: 5

40430 General Physiology

Physiologic principles and concepts. Prerequisites: Biol. 10231 and 10532 (10060 and 10061) and 10 hours chemistry.

Credit: 5

40518/50518 Vertebrate Embryology

Gametogenesis, fertilization, embryogenesis. Principles and concepts of developmental biology. Descriptive embryology of frog, chick, mammal. Prerequisite: Biol. 20518 or permission.

Credit: 5

10060 General Chemistry I

Beginning course in chemistry for science majors. Fundamental theories, laws, and practices. Emphasis on bonding, structure, formulas, and equations. Prerequisite: 1½ years high-school algebra or equivalent.

Credit: 5

10061 General Chemistry II

Second quarter of beginning course in chemistry for science majors. Emphasis on kinetics, equilibrium, and ionization. Prerequisite: Chem 10060.

Credit: 4

10062 General Chemistry III,

Third quarter of beginning course in chemistry for science majors. Emphasis on the properties of common elements and compounds. Prerequisite: Chem 10061.

Credit: 3

10063 General Chemistry II Laboratory

Laboratory for Chemistry 10061. Three hours per week. Pre- or corequisite: Chem. 10061.

Credit: 1

10064 General Chemistry III Laboratory

Inorganic qualitative analysis laboratory for Chemistry 10062. Pre- or corequisite: Chem 10062. Prerequisite: Chem. 10063.

Credit: 2

20481, 20482, 20483 Basic Organic Chemistry

A course in organic chemistry which includes chemistry of natural products and industrially important organic compounds as well as conventional topics. Prerequisite: of Chem 20481 is Chem. 10050 or 10060; of Chem 20482 is Chem 20481 or 30481; of Chem. 20483 is Chem. 20482.

Credit: 3 each

30481, 30482, 30483 Organic Chemistry

Functional group chemistry from structural, mechanistic and synthetic viewpoints. Introductory stereochemistry, structure-reactivity relations and selected reactions of difunctional compounds. Prerequisite: of Chem. 30481 is Chem. 10062, chemistry major or permission; of Chem. 30482 is Chem. 30481; of Chem. 30483 is Chem. 30482.

Credit: 3 each

30475, 30476, 30477 Organic Chemistry Laboratory

Practical experience in synthetic methods and separation techniques. Spetroscopy applied to organic chemical problems. Multistep synthesis. Prerequisite: Chem. 10063; pre- or corequisite for 30475 is Chem. 20481 or Chem. 30481; of Chem. 30476 is Chem. 20482 or Chem. 30482; of Chem. 30477 is Chem. 20483 or Chem. 30483.

Credit: 2 each

305

12001 Algebra and Trigonometry

College algebra and trigonometry for students preparing to take calculus. Prerequisite: Three years of high school mathematics.

Credit: 5

12002, 12003, 22004, 22005 Analytic Geometry and Calculus I, II, III, IV

Prerequisite: Math 12001 or equivalent.

Credit: 5 each

13001 General Physics

Introduction to the principles of mechanics. Pre- or corequisite: Math 12001.

Credit: 5

13002 General Physics

Introduction to the principles of electricity, magnetism and modern physics. Prerequisite: Physics 13001 or 23101.

Credit: 5

13003 General Physics

Introduction to the principles of heat, sound, light and modern physics. Prerequisite: Physics 13001 or 23101.

Credit: 5

23101 General Physics

Introduction to principles of mechanics. Pre- or corequisite: Math. 12003

Credit: 5

23102 General Physics

Introduction to the principles of electricity, magnetism and modern physics. Prerequisite: Physics 23101 or 13001. Pre- or corequisite: Math 22004.

Credit: 5

23103 General Physics

Introduction to the principles of heat, sound, light and modern physics. Prerequisite: Physics 23101 or 13001. Pre- or corequisite: Math. 22004

Credit: 5

Strongly Recommended Courses

30156 Elements of Genetics

Prerequisite: Biol. 10062 or equivalent.

Credit: 3

30111, 30112, 30113 Quantitative Analysis and Methods

Theory and applications of: stoichiometry; acid-base, solubility, and redox equilibria; data and statistics; volumetric and gravimetric procedures; non-aqueous and complexation titrations; electrodeposition; polarography; gas liquid chromatography; spectrophotometric methods, coulometry; separations, analog and digital electronics. Prerequisite: of Chem. 30111 is Chem. 30477; of Chem. 30112 are Chem 30111, Chem. 40551, Chem. 40567 or permission; of Chem 30113 are Chem. 30112 and Chem. 40552. Corequisite: of Chem. 30113 is Chem. 40553.

Credit: 5

The following is a list of high school courses that are recommended to prepare fully for the PRE-OSTEOPATHY program at any college or university outside the state of Wisconsin. See Appendix I for the course descriptions.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

Physics

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Sociology

Economics

Advanced Algebra with Trigonometry

Advanced Math

MENTAL, PHYSICAL and SOCIAL HEALTH SPECIALITIES

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ART THERAPIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

In order to assure that all students have opportunity to examine the various modes of arriving at answers to questions, "What does it mean to be human? What can a human become?" the College requires the following Core Curriculum:
The Synoptics Real, at the core of the curriculum, serves an integrative function providing a comprehensive vision or a synopsis of meanings. It offers the student the opportunity to reflect on the major questions of who she is and what she may become both immeducately and ultimately. It integrates subject matter from theology and philosophy: the theology by disclosing ultimate meanings-man and his relation to God-and philosophy through the critical interpretation of expressed meanings. An introductory course on the human search for meaning is conducted in the Great Books method.

Three Core courses required in Synoptics:
1 course on the Search for Meaning + 1 theology course + 1 phyilosophy course(12 credits).

The Symbolics Realm aims at developing one's ability to express herself and to translate others' expressions of themselves. It is used to communicate the meanings discovered in each of the other areas. Symbolics includes the communication arts of composition, speech, linguistics, foreign languages and mathematics.

Two Core courses required in Symbolics:

1 communication arts course(communication in writing and speech) + 1 option (8 credits).

The Esthetics Realm emphasize the human relationship to beauty. It studies the products of our artistic heritage: literature, music, art, drama and dance. Inter-disciplinary courses utilize the artistic resources within the Milwaukee community.

Three Core courses required in Esthetics:

1 fine arts course + 1 literature course + 1 option (12 credits).

The Humanistics Realm focuses on the person and her relationships with other human beings. The student explores the nature and dynamics of societies, past and present so this knowledge may serve her in future experiences. Humanistics encompasses history, political science, sociology, psychology, anthropology, cultural geography and economics.

Three Core courses required in Humanistics:

1 history course + 1 behavioral or social science course + 1 option (12 credits).

The Empirics Realm studies the person in relation to her physical environment with a view to her improved understanding of it. Earth science, biology, chemistry and physics are included.

One Core course required in Empirics:

1 course in biology, chemistry, physics or physical geography (4 credits).
Total Core requirements: 12 courses, 48 credits.

Physical Education seeks to develop the powers of the body and to aid physical and mental health. Emphasis is on the development of lifetime habits of physical fitness and recreational sports.
One semester course + 1 lifetime sport experience of about eight weeks each subsequent year are required.

Art Therapy Major:

Art 101, 105, 205, 215, 225, 226, 455
Soc 101
Ant 102
Psy 103, 214, 325
Ath 321, 322, 494, 497, 498

ART THERAPIST

COURSE DESCRIPTIONS

Art 101 Drawing

Concentration on the development of seeing and the expression of form. Drawing from life with emphasis on plasticity, mobility, and proportion. Various media.

Course: 1

Art 105 Design

Study of the principles of design and their application. Emphasis on textile design, including various methods of silk screening as well as other methods of printing. Experimentation encouraged.

Course: 1

Art 205 Ceramics

Fundamental principles of ceramics including hand building techniques and wheel throwing, preparation of clay, use of ceramic equipment, mixing of glazes and kiln firing. Prerequisite: 105,107, 227.

Course: 1

Art 215 Living Arts

A study of the involvement of the entire human being in the fine arts through exposure to lecture, discussion, and performance. Attendance at several current performances in the Milwaukee area is required.

Course: 1

Art 225 Sculptural Design

Principles of design as applied to volume, mass, and space relationships through modeling, casting, carving, and construction. Prerequisite: 105,107 or 227.

Course: 1

Art 226 Painting

Applied principles of painting in the oil and acrylic media. Development of painting through experimentation with color, form, surfaces, and techniques in exploring individual direction. Prerequisite: 101.

Course: 1

Art 445 Printmaking

An introductory course in the basic fine arts printmaking media with an emphasis on the major intaglio techniques including: drypoint etching, etching, aquatint, collograph, stenciled color relief roll-ups and blind embossing. Prerequisite: 101.

Course: 1

Soc 101 Basic Sociology

People create social worlds and encounter social worlds. This course is systematically organized to provide the student with a sociological perspective in order to understand the structural processes of interaction in human society.

Course: 1

Ant 102 Cultural Anthropology

A comparative study of people, cultures and societies with an introducation to related theory and methods. An analysis of language art, kinship, religion, political and economic systems as evidenced among "small-scale" or tribal non-Western people.

Course: 1

Psy 103 Basic Psychology

An introduction to the basic phenomena, concepts and theories in psychology. Criteria for interpreting behavioral data-including those regarding learning, perception, motivation, personality-will be covered.

Course: 1

Psy 214 Developmental Psychology

A survey of the theories and research findings in the study of the developmental life cycles. The influence of cultural and social phenomena in human development will be viewed as significant factors. Prerequisite: PSY 103h

Course: 1

Psy 325 Abnormal Psychology

The application of basic psychological theory and research to the explanation of disordered behavior and its modification. A strong focus on developing an awareness of the continuity between "normal" and "abnormal" experience and ways of living-particularly for those students who are entering one of the helping professions. Prerequisite: PSY 103 and PSY 214 and OCT 225.

Course: 1

Ath 321 Orientation of Art Therapy

An overview of the theories, principles, and practices of art therapy; a study of the literature and the history of the art therapy profession. The synthesis of basic psychological principles with art education practices. Examination of fantasy, dreams, symbolic communication through art experiences, and art products of the emotionally disturbed or social deviant.

Course: 1

Ath 322 Methods and Techniques of Art Therapy

Examination of methods and techniques of facilitating art expression and communication. Basic and current psychological models discussed for the understanding of the emotionally disturbed and their art products. Theories, principles, and approaches in art therapy as examined through readings, discussions, role playing, problem-solving, and lectures. Prerequisite: ATH 321

Course: 1

Ath 494 Art Therapy Practicum

The application of theories, practices, models, procedures, methods, and techniques in art therapy with emotionally disturbed in an approved mental health facility under professional direction and under the supervision of faculty(art therapist). Prerequisite: Ath 322.

Course: 2½

Ath 497 Seminar in Art Therapy

Problem-solving through group discussions and presentations based on readings, experience and research in art therapy with emotionally disturbed. Synthesis of all acquired knowledge in the field. Also includes role playing, guest lecturers, and visits to mental health facilities. Prerequiste: Ath 322.

Course: ½-1

Ath 498 Art Therapy Research

This course is designed for art therapy majors to meet the requirements of conducting a major research project by investigating in-depth an appropriate aspect of art therapy. Research designs will be discussed relative to the availability of critical literature and body of knowledge in this field. Students will receive consultation and participate in classroom discussion. Prerequisite: Ath 494.

Course: 1

The following is a list of high school courses that are recommended to prepare fully for the ART THERAPIST program at any college or university in Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Biology

Sociology

Psychology

Draw Paint

Ceramics

Printmaking

Sculpture

Art Foundations

Craft Survey

MUSIC THERAPIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requriements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman Year	Credit
English 101 Freshman English(Freshmen should take the English placement test)	3
English 102 Freshman English(Freshman should take the English placement test)	3
Music 111 Repertoire and Style	3
Music 123 Aural Theory	1
Music 125 Keyboard Harmony	1
Music 127 Harmony	2
Music 124 Aural Theory	1
Music 126 Keyboard Harmony	1
Music 128 Harmony	2
Music 175 Introduction to Music Therapy	2
Music Education 275 Field Experience in Music	1
Piano, Voice, and Instrument Courses	6
Biology 103 Biology and Man	3
Sociology 101 Introduction to Sociology	3
Performing Organization**	1
Music 107 Convocation*	1/No Credit
	33

Sophomore Year	
Music 211 General History of Western Music	3
Music 212 General History of Western Music	3
Music 225 Advance Harmony	2
Music 229 Keyboard Harmony	2
Music 230 Form Analysis	2
Music Education 275 Field Experience in Music (1 credit each semst.)	2
Piano, Voice, and Instrument Courses	6
Performing Organization**	1
Music 107 Convocation*	1/No Credit
Zoology 170 Human Anatomy and Physiology	3
Psychology 101 Introducation to Psychology	3
Anthropology 200 Profiles of Culture	3
Psychology 205 Personality	3
	33

Junior Year

	Credit
Music 227 Counterpoint	2
Music 228 Counterpoint II	2
Music 311 Music in the Baroque Era	2
or	
Music 312 Music in the Classic Era	2
or	
Music 313 Music in the Romantic Era	2
or	
Music 314 Music in the 20th Century	2
Music 107 Convocation*	1/No Credit
Music 465 Psychology of Music	2
Music 466 Psychology of Music	2
Music 470 Recreational Music	2
Music 375 Colloquium-The Influence of Music on Behavior	2
Instrument (1 cr each sem)	2
Performing Organization**	2
Educational Psychology 330 Introduction to Learning and Development	4
Psychology 412 Behavior Pathology	3
Core Curriculum Requirements	5
	30

Senior Year

Music 224 Arranging	2
Music 253 Conducting	2
Music 240 Funcional Piano(1 cr per sem)	2
Music 471 Music Therapy Principles and Practices	2
Music 375 Colloquium-The Influence of Music on Behavior	2
Music 475 Clinical Internship(Music Therapy)	1-6
Applied Music OXX, Fundamentals of Instruments	3
Performing Organization**	2
Physical Education 360 Kinesiology	3
Physical Education 463 Introduction to Motor Skill Development	2
Core Curriculum Requirements	9
	30-35

*Required for a total of six semesters

**Music organizations for credit may be chosen from Music040(Symphony Band) Music 051(Men's Glee Club), Music 052 (Women's Chorus), Music 054 (Oratorio Chorus), Music 056(University Concert Choir), Music 057 (Madrigal Singers), or Music 062(Symphony Orchestra).

MUSIC THERAPIST

COURSE DESCRIPTIONS

101 Freshman English

A course designed to improve the student's skill in reading and writing English. Required of all freshmen except those who qualify for exemption. Prereq: none.

Credit: 3

102 Freshman English

Introduction to literary genres, with continued practice in writing. Prereq: satisfaction of English proficiencey requirement.

Credit: 3

111 Repertoire and Style

An introduction to the general corpus of musical repertoire with emphasis on concepts of style. Prereq: ability to read music.

Credit: 3

123 Aural Theory

The singing and dictation of simple diatonic melodies and all intervals in ascending and descending motion. Rhythmic dication. Aural application of Harmony 127. Prereq: music major plus Music 001 or equlv.

Credit: 1

125 Keyboard Harmony

Performing at the piano chord progressions and cadences in major and minor keys. Realizaiton at piano of chordal accompaniments to simple melodies and figured basses. Keyboard application of Harmony 127. Prereq: music major plus Music 001 or equiv.

Credit: 1

127 Harmony

The structure of primary and secondary triads and dominant 7th chord; constructing these chords and building cadences. Realization of figured and unifigured basses and melodies. Introduction to non-chordal tones and modulation. Includes analysis and some creative writing. Prereq: music major plus Music 001 or equiv.

Credit: 2

124 Aural Theory

The singing and dictation of melodies and progressions with and without chromatic alteration. Involves modulation, rhythmic patterns, 7th chords, and their inversions and some contrapuntal dictation. Aural application of Harmony 128. Prereq: Aural Theory 123 or equiv.

Credit: 1

126 Keyboard Harmony

Realization at piano of figured basses and the harmonization of melodies. Includes 7th chords, and their inversions, moduation, sequence, and transposition. Keyboard application of Harmony 128. Prereq: Keyboard Harmony 125 or equiv.

Credit: 1

128 Harmony

Connecting both triads and the 7th chords in root position as well as in inversions on all degrees of scales. Diatonic and chromatic nonchordal tones; cadence patterns; continuation of modulation and sequences. Realization of figured and unfigured basses and melodies. Continuation of analysis and creative writing. Prereq: Music 127 or equiv.

Credit: 2

175 Introduction to Music Therapy

Definition of music as therapy; introduction to music as a thereapeutic function; scope of music therapy; areas of application' professional aspects; and its role in the therapeutic milieu. Study of institutions utilizing music therapy. Field trips. Prereq: cons instr.

Credit: 2

275 Field Experience in Music

Experience working with children in cooperating school systems in or near Milwaukee, Supervision by critic teacher or other qualified individual. Prereq: acceptance into the Music Department

Credit:1-3

103 Biology and Man The Mechanisms of Life

Life processes from molecules through organisms; origin, development, and varation of physiological function in health and disease. Fulfills the requirement of an introductory course in biology for some advanced courses. Prereq: none

Credit:3

101 Introduction to Sociology

Sociology as a special field of social science. The relationship of the work of the sociologist to contemporary society, an examination of the sociological perspective. Prereq: none.

Credit: 3

107 Convocation

A general assembly of the Department of Music held Fridays at 12:30 p.m. during the academic year. Includes presentation of student and in performance, presentation of notable work and research in the field of music and its allied areas. Music majors are to sign up for 1-N cr. all others for 1 cr.

Credit: 1 or
1-N

211 General History of Western Music

Historical development of music up to the Baroque period correlating period and style with history and the other arts. Prereq: soph st and 2 sem of music theory.

Credit: 3

212 General History of Western Music

Historical development of music from the Baroque, correlating period and style with history and the other arts. Prereq: soph st and 2 sem of music theory.

Credit: 3

225 Advanced Harmony

A continuation of harmonic practice and procedures begun in first year theory. Includes exercises in the use of secondary 7th chords, modulation, diminished 7th chords, chords of the augmented 6th, altered chords, and 9th, 11th, and 13th chord structures. Prereq: Music 124, 126 and 128.

Credit: 2

229 Keyboard Harmony

Presentation of harmonic patterns at the keyboard to develop skill in four-part playing, and improvisation of free accompaniments of melodies. Analysis and transposition of Bach chorates. Prereq: Music 124, 126 and 128.

Credit: 2

230 Form Analysis

Study of the basic cells used for evolving musical structures. The two-part, three-part and five-part song forms are analyzed; thesem and variation form, song form with trio, sonatina form, sonata allegro form, and the symphonic concerto, and chamber music structures are discussed and analyzed. Prereq: Music 124, 126, and 128.

Credit: 2

170 Human Anatomy and Physiology

Structure of the human body and the physiology of organ systems. Required for physical education majors and minors but open to others. Not open to students who have credit in Zool 204 or 400. Does not carry credit toward Zoology major. Lect. lab. Prereq: none.

Credit: 3

101 Introduction to Psychology

The scientific study of behavior. Prereq: none.

Credit: 3

200 Profiles of Culture: Intermediate Sociocultural Analysis

Survey of cultural anthropology; examination of selected ethnographic data in the light of basic culture theory and the study of comparative human institutions. Prereq: soph st. Anthro 102 or Soc 101 advisable. (3 rd. lect only; 4 cr.lect and disc)

Credit: 3-4

205 Personality

Principles of personality; and overview of adaptive and maladaptive behavior patterns. Prereq: Psych 101

Credit: 3

227 Counterpoint I

Rigorous work with species counterpoint plus invertible counterpoint, canon and two-part invention. Examples are analyzed and constructed by the student. Prereq: Music 124, 126, and 128.

Credit: 2

228 Counterpoint II

A continuation of Counterpoint 227, but with emphasis upon the three-,four-, and five-voiced fugue and fugal development procedures. Passacaglia and chaconne principles are also covered. Prereq: Music 227.

Credit: 2

311 Music in the Baroque Era

A survey of the music of the Baroque Era based on the study of master works. Prereq: jr. st. and Music 211, 212, 225, 227, and 230.

Credit: 2

312 Music in the Classic Era

A survey of the music of the Classic Era based on the study of master works. Prereq: jr st and Music 211, 212, 225, 227, and 230.

Credit: 2

313 Music in the Romantic Era

A survey of the music of the Romantic Era based on the study of master works. Prereq: jr st and Music 211,212, 225, 227,and 230.

Credit: 2

314 Music in the 20th Centry

A survey of the music of the 20th Century based on the study of master works. Prereq: jr st and Music 211, 212, 225, 227, and 230.

Credit: 2

465 Psychology of Music

An overview of the socio-psychological aspects of music. A critical appraisal of the growth and development of the creative processes and their role in the emergence of musicality. Emphasis on the learning processes, psychometric evaluation, and the significance of the "primacy of audition." Prereq: jr st and cons instr.

Credit: 2

466 Psychology of Music

Relationship of music to personality development and group processes. Emphasis on the clinical aspects of music and human behavior. Prereq: Music 465 and cons instr.

Credit: 2

470 Recreational Music

Consideration of the philosophies and theories of recreation. The development and application of performance skills with "non-formal" musical instruments in recreational and therapeutic settings. Prereq: jr st and cons instr.

Credit: 2

330 Introducation to Learning and Development

Principles and concepts of learning and development that contribute the understanding and direction of school learning.

Credit: 4

412 Behavior Pathology

Psychology of abnormal behavior; the nature and socialbiological origins of psychotic, neurotic, and other behavioral abnormalities. Prereq: Psych 205.

Credit: 3

224 Choral Arranging

Techniques of composition and arranging for choral ensembles of all sizes. Representative scores are studied and demonstrated. Composing of accompaniments employing various instrumental combinations as well as piano. Prereq: jr st and two sem of music theory.

Credit: 2

253 Conducting

Basic baton and rehearsal techniques for both choral and instrumental groups. Class forms a laboratory chorus. Prereq: jr st.

Credit: 2

240 Functional Piano

Funcational use of the keyboard for accompanying, sight-reading, and improvising. Prereq: 4 sem of Applied Music 101 or cons instr.

Credit: 1-2

471 Music Therapy Principles and Practices

Theory and principles of music as therapy. Study of the effects of music on behavior; psychological and physiological implications in treatment. Methodology, materials, and administration. Prereq: sr st and cons instr.
Credit: 2

475 Clinical Internship(Music Therapy)

A six-month music therapy clinical internship in an approved clinical training center. Prereq: cons instr.
Credit:1-6

360 Kinesiology

The role of the skeletal, muscular, and nervous systemns in motor performacne and skill. Prereq: Zool 170 and PhyEd 180.

Credit: 3

463 Introducation to Motor Skill Development

A survey of motor development during childhood, adolescence and adult life. Factors influencing the development of gross motor skills with special emphasis upon the pre-school and school-aged child. Prereq: jr st or cons of dept.

Credit: 2

323

The following is a list of high school courses that are recommended to prepare fully for the MUSIC THERAPIST program at any college or university in Wisconsin. See Appendix I for the course descriptions.

Biology

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Sociology

Music Theory

Band and/or

Orchestra and/or

Mixed Chorus

OCCUPATIONAL THERAPIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman Year

First Semester	Credits
English 101	3
Art 100	3
Health Sciences 101	3
Psychology 101	3
Electives	3
	15

Second Semester	
Psychology 205	3
Sociology 130	3
Communication 103 or 105	2-3
Electives	6-7
	15

Sophomore Year

First Semester	
Occupational Therapy 201	3
Zoology 170 or 204	3-4
Humanities Elective	3
Electives	2
	15

Second Semester	
Health Sciences 203	3
Psychology 412	3
Art Education	4
Humanities Electives	3
Electives	2
	15

JUNIOR YEAR

First Semester

	Credits
Occupational Therapy 301	3
Occupational Therapy 303	3
Occupational Therapy 305	3
Occupational Therapy 306	3
Health Sciences 205	3
	15

Second Semester

Occupational Therapy 311	1
Occupational Therapy 313	2
Occupational Therapy 315	1
Occupational Therapy 317	1
Occupational Therapy 320	6
Occupational Therapy 321	3
Occupational Therapy 325	2
	16

Summer Session

Zoology 304	3
Occupational Therapy 402	3
	6

SENIOR YEAR

First Semester

Occupational Therapy 403	1
Occupational Therapy 405	5
Health Sciences 406	4
Occupational Therapy 409	1
Electives	4
	15

Second Semester

Occupational Therapy 411	2
Occupational Therapy 415	2
Occupational Therapy 417	1
Occupational Therapy 420	6
Occupational Therapy 423	3
Occupational Therapy 425	2
	16

OCCUPATIONAL THERAPIST

Course Descriptions

101 Freshman English

A course designed to improve the student's skill in reading and writing English. Required of all freshman except those who qualify for exemption. Prereq: none

Credit: 3

100 Basic Art Experiences

Lect-Lab. Presentations provide historical, philosophical and social background for appreciation of art. Laboratory experiences on design and drawing. Prereq: none. NOT OPEN TO ART AND ART EDUCATION MAJORS.

Credit: 3

101 Problems and Practices in Health and Health Delivery Systems

Introduction to environmental, genetic, social, cultural, economic, and political factors affecting health and health care. Lect. disc. Enrollment for 3 cr. requires field service.

Credit: 2-3

101 Introduction to Psychology

The scientific study of behavior. Prereq: none.

Credit: 3

205 Personality

Principles of personality: an overview of adaptive and maladaptive behavior patterns. Prereq: Psych 101.

Credit: 3

130 Introduction to Social Psychology

Introduction to the general area of social psychology, covering such topics as perception, motivation, attitude, value, communication, and roles. Prereq: Psych 101

Credit 3

103 Public Speaking

Principles of public address in informative, persuasive, and special-occasion situations, with emphasis on the theory, composition and presentation of speeches. Not open to students who have had Comm 105. Prereq: None

Credit: 3

201 Introduction to Occupational Therapy

Orientation to the principles and practices of occupational therapy. Includes field observation of OT programs in the community. Prereq: soph st in the OT program and Hlth Sci 101.

Credit: 3

170 Human Anatomy and Physiology

Structure of the human body and the physiology of organ systems. Required for physical education majors and minors but open to others. Not open to students who have credit in Zool 204 or 400. Does not carry credit toward zoology major. Lect, lab. Prereq: none

Credit: 3

203 Human Life Cycle (Module 1-Early Childhood; Module 2-Childhood & Adolescence; Module 3-Adulthood)

Views of leading theorists in the field of human development will be presented with emphasis on biopsychosocial aspects of five major stages of development from neonate through senescence. Prereq: Health Sci 101.

Credit: 1-3

412 Behavior Pathology

Psychology of abnormal behavior; the nature and social-biological origins of psychotic, neurotic, and other behavioral abnomalities. Prereq: Psych 205.

Credit: 3

301 Neuroanatomy and Neurophysiology for Occupational Therapists.
A functional approach to the human nervous system and neuropathology. Orientation to evaluation and treatment for neurological disorders. Prereq: jr st in the OT program.

Credit: 3

303 Occupational Therapy Practicum for Psychosocial Dysfunction

Didactic instruction in occupational therapy for treatment and prevention of psychosocial problems integrated with clinical instruction and field experience. Prereq: jr. st in the OT program.

Credit: 3

305 Occupational Therapy Theory for Psychosocial Dysfunction

Analysis of occupational therapy theory and practice as related to psychosocial disabilities. Lect. lab. Prereq: jr st in the OT program.

Credit: 3

306 Psychopathology

The study of mental processes: the healthy personality, developmental disorders, drug abuse, alcoholism, neuroses and psychoses. Preventive measures and special problems in industry are included. Prereq: jr st in the OT program.

Credit: 3

205 Pathobiology

A lecture course dealing with the cause of disease and its consequence. Designed for students with a minimal scientific background. Prereq: Biol 103 or Zool 101 or 170.

Credit: 3

311 Occupational Therapy in Community Mental Health

Exploration of public and private community-based mental health programs, with emphasis on occupational therapy services. 4-week mini-course. Lect. disc. Prereq: second sem jr st in the OT program.

Credit: 1

313 Professional Writing and Concepts of Investigative Studies

Survey of investigative studies and occupational therapy projects as found in professional journals. Practice in recording and reporting occupational therapy program data. 4- week mini-course. Lect, lab. Prereq: second sem jr st in the OT program.

Credit: 2

315 Group Interactions Utilized in Occupational Therapy Practice

Study of and participation in group process specific areas to occupational therapy programs. 4-week mini-course. Disc. lab. Prereq: second sem jr st in the OT program.

Credit: 1

317 Advanced Occupational Therapy Theory

Emphasis on specific areas of occupational therapy and techniques not previously presented. 4-week mini-course. Disc, lab. Prereq: second sem jr. st in the OT program.

Credit: 1

320 Occupational Therapy Field Service I

Practical applications of occupational therapy in health programs for the prevention of psychosocial disorders and for treatment, rehabilitation, and maintenance. Three months field service. Prereq: second sem jr st in the OT program.

Credit: 6

321 Aministration of Occupational Therapy Programs

Study of the establishment and administration of occupational therap programs. 4-week mini-course. Lect, disc. Prereq: second sem jr st in OT program.

Credit: 3

325 Occupational Therapy Junior Seminar

Summary and analysis of occupational therapy services primarily in psychosocial treatment situations. 4-week mini-course. Disc. lab. Prereq: second sem jr st in the OT program.

Credit: 2

304 Musculo-Skeletal Anatomy

An in-depth anatomical survey of the musculo-skeletal systems of the human body, with emphasis on the structure, location, and function of these systems. 4 hrs lect. 4 hrs lab for eight weeks. Prereq: jr st and Zool 170 or 204.

Credit: 3

403 Occupational Therapy Practicum for Physical Dysfunction

Opportunity for observation, experiential learning, and clinical application of the principles of prevention and OT treatment for physical disabilities. Prereq: sr st in OT program.

Credit: 1

405 Occupational Therapy Theory for Physical Dysfunction

Module 1: Evaluation; Module II: Neuromuscular disorders; Module III: C.N.S. treatment technique; Module IV: Musculoskeletal disorders; Module VI Activities of daily living. OT students must enroll for 5 cr. Prereq: sr st in OT program.

Credit: 1-5

406 Medical Lectures

(Module I: Orthopedics; Module II Neurology; Module III: Genral Medicine; Module IV: Surgery). Interdisciplinary approach to the symptomatology, prevention, and treatment of specific conditions affecting individuals during the entire life span. Prereq: jr st and cons of program director.

Credit: 1-4

409 Seminar in Physical Dysfunction

A seminar discussion of the practicum experience. Prereq: sr st in OT program.

Credit: 1

411 Rehabilitation of the Hand

Module I: Structure, function, and evaluation of the hand; Module II: Fabrication and application of orthotic devices for the hand. 4-week mini-course. OT students must enroll for 2 cr. Prereq: sr st in OT program.

Credit: 1-2

415 Fundamentals of Biomechanics and Applied Anatomy for the Occupational Therapist

Moduel I: Application of biomechanical principles to motion of the musculoskeletal system; Module II: In-depth analysis of OT activities. OT students must enroll for 2 cr. 4-week mini-course. Prereq: sr st in OT program.

Credit: 1-2

417 Selected Topics in Physical Disabilities

Readings and discussion of recent research and special topics in physical disabilities. 4-week mini-course. Prereq: Second sem sr st in OT program.

Credit: 1

420 Occupational Therapy Field Service II

Practical application of occupational therapy in health programs for the treatment, rehabilitation, maintenance, and prevention of physical disabilities. 3 months field service. Prereq: Second sem sr st in OT program.

Credit: 6

423 Writing and Research of Occupational Therapy Practice

The process of design, implementation, and documentation of a research project in occupational therapy. 4-week mini-course. Prereq: Second sem sr st in OT program.

Credit: 3

425 Occupational Therapy Senior Seminar

Summary and analysis of occupational therapy services primarily in physical dysfunction treatment situations. 4-week mini-course. Prereq: Second sem sr st in OT program.

Credit: 2

The following is a list of high school courses that are recommended to prepare fully for the OCCUPATIONAL THERAPIST program at any college or university in Wisconsin. See Appendix I for the course descriptions.

Biology

Chemistry

Art Foundations

Psychology

Sociology

English Language Arts

Developmental Writing

Writing Seminar

OCCUPATIONAL THERAPY ASSISTANT

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year	First Semester		Credits
OTAsst	101	Introduction to Health Care Team and Patient Care Procedures	1
OTAsst	103	Medical Diseases, Disabilities, and Terminology	3
OTAsst	110	Introduction to Occupational Therapy Therory	3
OTAsst	112	General Woodworking-Machine and Hand Tools	2
Clo	100	Sewing Techniques for Occupational Therapy Assistance	2
*Eng	101	English or	
Eng	151	Communication Skills 1	3
Phy	101	Physical Education	1
SocSci	131	General Psychology or	
SocSci	151	Psychology of Human Relations	3
			18

Second Semester			
OTAsst	120	Occupational Therapy Media	3
OTAsst	124	First Aid and Cardipulmonary Resuscitation	1
OTAsst	125	Osteology, Myology and Kinesiology	1
*Eng	102	English 2 or	
Eng	152	Communication Skills 2	3
NatSci	103	Anatomy and Physiology	5
PhyEd	154	Recreational,Social, and Physical Activity	2
SocSci	134	Human Growth and Development	3
			18

Second Year	First Semester		
OTAsst	130	Applicationof Occupational Therapy Theory in Psychiatry and Mental Retardation	3
OTAsst	131	Application of Occupational Therapy Theory in Physical Disabilities	3
OTAsst	133	Advanced Occupational Therapy Skills	3
OTAsst	135	Application of Recreational Skills	3
SocSci	110	Basic Economics	3
SocSci	153	American Institutions	3
			16

Second Semester	Credits
OTAsst 140 Supervised Clinical Practice-Physical Disabilities	6
OTAsst 141 Supervised Clinical Practice- Psychosocial	6
OTAsst 145 Clinical, Educational, and Self-Evaluation Methods	3
	16

OCCUAPTIONAL THERAPY ASSISTANT

COURSE DESCRIPTIONS

101 Introduction to the Health Care Team and Patient Care Procedures

The student is introduced to the historical development of health care services and health care agencies with on-site visits. Current topics in medical care and legislation; legal implications of treating patients, including liability and ethics; and relationships of the health science professions are discussed. The course provides an introduction to routine hospital, nursing, fire and disaster procedures and identification of hospital and nursing home units.

Credit: 1

103 Medical Diseases, Disabilities, and Terminology

A study is made of the commonly-seen medical conditions, their etiology, common methods of treatment, prognosis, and drugs used. The student becomes familar with medical terminology and the use of medical resource material.

Credit: 3

110 Introduction to Occupational Therapy Theory

This course provides an orientation to the profession. The student acquires knowledge and understanding of the major theoretical basis for the practice of occupational therapy in psychiatry and in physical disabilities in institutional, outpatient, and community settings. Also, the history of occupational therapy and professional associations is discussed. The student's ability to relate to patients is evaluated.

Credit: 3

100 Sewing Techniques for Occupational Therapy Assistants

An important aspect of occupational therapy is the ability to channel the client's interest in self-sufficiency. Student acquire proficiency in basic sewing skills which are patient oriented. Emphasis is on techniques which enable the handicapped to operate the sewing machine and construct simple items that may be saleable. Consumer information includes the selection of fabrics and sweing machines, and pricing items for sale. Prerequisite: Enrollment in Occuaptional Therapy Assistant program.

Credit: 2

101 English 1

The object of Eng 101 is to develop the student's writing and thinking ability to the extent possible. He writes expository and argumentative compositions and reads and examines essays for both content and structure. Problems of mechanics and usage are given concentrated study.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

101 Physical Education

The coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. The student furnishes his own personal equipment.

Credit: 1

131 General Psychology

An introductory course in the theory, basic concepts, methods, current research, statistical analyses, and applications of psychology as the science of human and animal behavior. This course details the concerns of the science of behavior including development, motivation, learning, forgetting, thinking, perception, psychometrics, intelligence, emotion, frustration, personality, psychopathology, and social behavior. Throughout, there is emphasis on typologies, models, self-integration, and individual differences in a setting of social living.

Credit: 3

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

120 Occupational Therapy Media

A lecture-laboratory course designed to give an introducation to craft techniques such as weaving, braiding, knitting, macrame, needlecraft, rug-making, ceramics, drawing and design, copper tooling, mosaics, cooper enameling, leather, basketry, printing, scrap crafts, wood carving-burning, and children's crafts. The major emphasis is on teaching techniques, relating the use of crafts to goal-oriented patient treatment. The ordering of supplies and materials is included. Prerequisite: OT Asst 110.

Credit: 3

124 First Aid and Cardiopulmonary Resuscitation

This course is limited to students in the Occupational Therapy Assistant and Physical Therapist Assistant programs. It includes lectures, demonstrations, and student practices as outlined in the course offered by the American Red Cross and the American Heart Association. Upon successful completion of the course, certificates will be awarded.

Credit: 1

126 Osteology, Myology, and Kinesiology

The student studies the identification of planes, axes, anatomical parts of the body, bones and bony landmarks, types of joints and locations, connective tissue at joints, and origins, insertions, actions, and innervations of muscles of the body. Discussions include gross structure, microstructure, contractions of striated muscle, center of gravity and equilibrium of body, movements of every joint and of the body as a whole, and the body's framework, posture, and locomotion.

Credit: 1

102 English 2

The intent of Eng 102 is to give the student further training in composition, and to enlarge his understanding and appreciation of the genres by requiring him to analyze and write about fiction, drama, and poetry. Major attention is also given to the preparation and writing of the research paper. Prerequisite: Eng. 101.

Credit: 3

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

103 Anatomy and Physiology

A general course which presents the normal structural and functional activities of the human body. Each system of the body is structurally and functionally discussed. Structural anomalies and functional dysfunctions are discussed briefly. Laboratory studies of the systems are aided by the use of models and skeletons, and by student dissections of cats and other animal specimens. Prerequisite: One year of either high school biology or high school general science.

Credit: 5

154 Recreational, Social, and Physical Activity

A study is made of the physical growth and motor skill development of individuals from early childhood to adulthood. Included in the course is active participation in physical activities with application in health care facilities. Prerequisites: PhyEd 101 and enrollment in Occupational Therapy Assistant program(or consent of instructor).

Credit: 2

134 Human Growth and Development

Concepts of normal growth and development are presented. A survey is made of the changing physical, physiological, and psychological characteristics of individuals as they progress through the life span, from the neonatal period through adolescence, adulthood, and old age. The common life crises during the life span are identified.

Credit: 3

130 Application of Occupational Therapy Theory in Psychiatry and Mental Retardation

Basic objectives and functions of occupational therapy in psychiatry are examined, with emphasis on current theory and practice. The student explores various theoretical approaches to psychiatry and mental retardation; identifies specific diagnostic categories with associated physical problems, and prognosis for children and adults; and develops an understanding of major components of the occupational treatment process. Prerequisites: OT Asst 120, SocSci 134, and SocSci 131 or 151.

Credit: 3

131 Application of Occupational Therapy Theory in Physical Disabilities

The student is familiarized with basic objectives and functions of occupational therapy in a physical disabilities setting. He explores, for both children and adults, the aspects of, and treatment techniques for, physically and mentally disabled, along with analysis, grading, evaluative techniques, and documentation. Prerequisites: OT Asst 120 and 126; and Nat Sci 103.

Credit: 3

133 Advanced Occupational Therapy Skills

The focus of this course is on theory, evaluation, and methods of independent living. Self-care for physically and psychologically disabled, homemaking and work simplification problems, architectural barriers, wheelchair prescription, vocational planning, adaptive equipment, static splints, and organization and administration are some of the areas investigated. Prerequisite: OT Asst 120.

Credit: 3

135 Application of Recreation Skills

The student applies acquired knowledge of recreational and social activities for both children and adults in clinical settings. Other areas of study include utilization of volunteers and community resources, development of activity programs in other agencies, and introduction to reality orientation and remotivation. Prerequisite: PhyEd 154.

Credit: 1

110 Basic Economics

A general introduction to major institutions and principles which underlie our contemporary American economic system. The course is designed both to serve the general student and as an introduction to SocSci 111 and 112. Topics considered are: the nature of economics and economic systems, demand and supply, the measurement of economic performance, government in a free enterprise system, problems regarding business and labor organizations, and economic growth and development.

Credit: 3

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology and government. Subject matter is flexible and may be altered as societal change makes it necessary.

Credit: 3

140 Supervised Clinical Practice - Physical Disabilities

This course consists of eight weeks of supervised practical application of occupational therapy theory and methods in a physical disabilities setting. The student spends a 36-hour work week in the clinic, returning to MATC one afternoon each week for OT Asst 145. Prerequisities: OT Asst 131,133, and 135.

Credit: 6

141 Supervised Clinical Practice - Psychosocial

In eight weeks of supervised practical application of occupational therapy theory and methods in a psychosocial setting,the student spends a 36-hour work week in the clinic, returning to MATC one afternoon a week for OT Asst 145. Prerequisites: OT Asst 130,133, and 135.

Credit: 6

145 Clinical, Educational, and Self-Evaluation Methods

Throughout the physical disabilities and psychosocial affiliations, the student attends a three-hour class one afternoon a week for evaluation of clinical experiences, self-evaluation, and methods of increasing effectiveness as an occupational therapy assistant. Group dynamics, leadership, and educational theory and methods are included. Prerequisite: Concurrent registration in OT Asst 140 and 141.

Credit: 3

101 Elements of Speech 1

The purpose of this course is the development of speaking skills with emphasis upon the dual role of speech as both a speaking and a listening activity. Stress is placed upon speech content, organization, and delivery, with practice provided through individual and group work. Growth in poise and confidence is a major goal of the course.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the OCCUPATIONAL THERAPY ASSISTANT program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

- Biology
- Economics
- Psychology
- English Language Arts
- Developmental Writing
- Writing Seminar
- Woodwork
- Clothing Managment
- Craft Survey

PHYSICAL THERAPIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the specific programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

Course Outline

Freshman

First Semester	Credits
English 001	3
Biology 001	3
Theology	3
Psychology 001	4
History 001, Economics 002, 010 Political Science 020, 040, 060	3
	16

Second Semester	
English 002	3
Chemistry 001	4
Sociology 001	3
PhTh 001	1
Philosophy 050	3
History 002, Economics 010, 020 or 030, Political Science 020, 040,060	3
	17

Sophomore

First Semester	
English Literature	3
Physics 001	4
Chemistry 002	4
Theology	3
PhTh 110 Anatomy	3
	17

Second Semester	
English Literature or Foreign Language Literature	3
Physics 002	4
PhTH 111 Anatomy	3
PhTh 002	1
Psychology	3
Philosophy 104	3
	17

Junior

First Semester	Credit
Biology 085 Neurobiology	3
Biology 172 Physiology	4
PhTh 116 Kinesiology	3
PhTh 151 Procedures I	3
Philosophy/Theology	3
PhTh 160 Therapeutic Exercise I	1
PhTh 175 Health Care	1
	18

Second Semester	
PhTh 112 Neuroanatomy	3
PhTh 117 Kinesiology	3
PhTh 152 Procedures II	3
PhTh 153 Manual Muscle Testing	1
PhTh 161 Human Growth	1
Basic Science 081 Pathology	3
PhTh 179 Clinical Orientation	1
Biology 173 Physiology Lab	3
	18

Senior

First Semester	
PhTh 140 Clinical Medicine and Surgery	4
PhTh 162 Therapeutic Exercise II	12
PhTh 172 Contemporary Issues	2
PhTh 180 Project	2
	20
PhTh 183 Clinic	8

Total Credits 131

PHYSICAL THERAPIST

COURSE DESCRIPTIONS

001 Modes of Discourse I

An introduction to the basic principles of rehetoric and composition. Investigation of and practice in the uses of written language in exposition, argument, and persuasion. Offered every semester.

Credit: 3

001 General Biology I

Biology as a science. Elementary physics and chemistry for biologies. Biochemistry. Cellular organization and reproduction. Regulation and control at cellular and organismal levels. Immune mechanisms. Neuroanatomy and neurophysiology. Offered Fall semester.

Credit: 3

001 General Psychology

Introduction to scientific psychology: biological bases of behavior; perception; principles of learning; intelligence and personality testing; current theories of personality; conflict, adjustment and mental health; interpersonal relations; social processes; applications of psychological principles to human affairs. Three hours of classroom instruction and on hour of special topics covered in laboratory discussion, film, colloquia, etc. Offered every semester.

Credit: 4

002 Modes of Discourse II

Continuation of Eng 001, with an introduction to the uses of language in poetry, fiction, and drama. Offered every semester. Prereq: Eng 001.

Credit: 3

001 General Chemistry

Introductory college Chemistry. Fundamental principles of Chemistry. Application of fundamental principles to the Chemistry of certain elements. The following mathematical concepts are used in Chem 001 and 002: scientific notation, logarithms, the quadratic equation and proportionality. Offered every semester. Fee

Credit: 4

001 Principles of Sociology

An introductory survey of the discipline including social structures, the processes of human interaction and methods of sociological investigation. Offered every semester.

Credit: 3

PhTh 001 Introduction to Physical Therapy

General survey of the field, its history, and development. Current Philosophy regarding the Physical Therapy profession.

Credit: 1

050 Philosophy of Man

Investigation into the meaning of rational life. Knowledge, love, freedom. The significance of man as person. Offered every semester.

Credit: 3

001 General Physics

Newton's laws, linear motion, circular and harmonic motion, fluids, heat, kinetic theory, wave motion and sound. Offered every semester. Prereq: high school trigonometry or equivalent.

Credit: 4

002 General Chemistry

Continuation of Chem 001. Chemistry of metals and non-metals. Qualitative analysis included as part of laboratory work. Offered every semester. Prereq:Chem 001 or Cons. of Dept.

Credit: 4

PhTh110, 111 Human Gross Anatomy

Systematic survey of human anatomy with some emphasis on histology during first semester. Regional approach second semester utilizing both lecture and dissection of human material. Clinical applications. Prereq: Biol 001, Chem 001.

Credit: 6

002 General Physics

Continuation of Phys 001. Electrostatics, DC circuits, magnetism, electromagnetic induction, light, optical instruments, interference and diffraction of light, modern physics. Offered every semester. Prereq: Phys 001.

Credit: 4

PhTh 002 Introduction to Kinesiology

Basic terminology and principles of body mechanics. Application of laws of physics to normal muscle and joint action.

Credit: 1

104 Theory of Ethics

Nature of the moral act. The norm of morality. Natural and positive moral laws. Conscience, rights and duties. Offered every semester
Credits: 3

085 Neurobiology

Structure and function of nerve cells and sensory, motor and simple nervous systems. Neural events underlying behavior in lower animals. Survey of the human nervous system. Offered Fall semester. Prereq: Chem 002 or 007 or Cons. of Inst.

Credit: 3

172 Human Physiology

A basic course designed to explain to students in the Medical Technology and Physical Therapy curricula the systemic and cellular mechanisms responsible for homeostasis in the human organism. Offered Fall semesters. Prereq: MeTe 110 or PhTh 110(both may be taken concurrently) and registration in the MeTe or PhTh curricula or Cons. of Instr.
Credit: 4

PhTh 116, 117 Kinesiology

Functional anatomy of the skeletal and muscular systems in normal and abnormal conditions. Body mechanics and analysis of muscle and joint action in locomotionand other daily activities. Lecture, demonstration and laboratory pracitce. Prereq: Biol 001, Phys 001, PhTh 110, 111.
Credit: 6

PhTh 112 Neuroanotomy

Lecture on basic principles of human nervous system structure and function. Laboratory, demonstration and human brain specimens. Clinical application of the neuroanatomy. Prereq: Biol 085.
Credit: 3

PhTh 140 Clinical Medicine and Surgery

Lectures in fields of medicine, neurology, pediatrics, clinical psychology, surgery, orthopedics. No mid-semester assessment assigned.
Credit: 4

PhTh 151,152 Procedures I, II

Fundamental principles, physical and physiological basis for therapeutic application of message, modalities of heat (radiation, ultra-sound, hydrotherapy) and cold as well as electrotherapy and electrotesting procedures. Lecture, demonstration and laboratory. Prereq: Phys 002.
Credit: 6

PhTh 153 Procedures II

Theory, techniques of administration and recording of muscle strength, range of joint motion. Lecture, demonstration and laboratory practice. No mid-semester assessment assigned.

Credit: 1

PhTh Therapeutic Exercise I

Introductory course covering fundamental principles, types of exercise, basic positions, and techniques.

Credit: 1

PhTh 161 Normal Growth, Development and Aging

Selected aspects of generalized normal progression of acquiring skilled motor behaviors and the alterations of those behaviors due to the aging process presented in lectures, video tapes, demonstrations and field trips.

Credit: 1

PhTh 162 Therapeutic Exercise II

Principles, methods, and techniques of therapeutic exercise employed in the prevention or treatment of disease. Study of neuromuscular, musculoskeletal, cardiovascular, and respiratory impairments with appropriate exercise routines. Gait training, prosthetics, and locomotion. Lecture, demonstration, and laboratory.

Credit: 12

PhTh 172 Contemporary Issues

Contemporary physical therapy; quality practice and current issues. Lectures, laboratory and seminars deal with current practices to encourage consistent delivery of high quality physical therapy services at reasonable costs. Major related issues.

Credit: 2

PhTh 175 Introduction of Health Care Systems

The various health care systems within a community, current concepts, philosophy, and application of such systems to Physical Therapy practice. Community health as applied to the total care of the patient. Emphasis on inter-professional and community relationships and obligations. No mid-semester assessment assigned.

Credit: 1

PhTh 179 Clinical Orientation

Introduction to nursing techniques applicable to Physical Therapy. Observation in Physical Therapy and Occupational Therapy clinics. Practice of body mechanics and safety measurers employed in movement of disabled patients. Lecture, demonstration, and clinical observation. No mid-semester assessment assigned.

Credit: 1

PhTh 180 Senior Project

Independent study and research in special areas of interest to Physical Theraphy students. No mid-semester assesment assigned.
Credit: 2

PhTh 183 Clinical Training

Supervised hospital internships on a regular workday basis during the second semester of the Senior year. No mid-semester assessment assigned.
Credit: 8

The following is a list of high school courses that are recommended to prepare for the PHYSICAL THERAPIST program at any college or university of Wisconsin. See Appendix I for the course description.

- Biology
- Chemistry
- Advanced Biology
- Advanced Chemistry
- Physics
- Advanced Algebra with Trigonometry
- Psychology
- Sociology
- English Language Arts
- Developmental Writing
- Writing Seminar

PHYSICAL THERAPY ASSISTANT

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester	Credit
Orientation to Physical Therapist Assisting and Basic Health Terminology 101	1
Physical Therapist Assisting 1 105	6
*English 1 101 or Communication Skills 1 151	3
Technical Mathematics 1 151	4
Physical Education 101	1
General Psychology 131 or Psychology of Human Relations 151	3
	18

Second Semester	
Physical Therapist Assisting 2 106	5
*English 2 102 or Communication Skills 2 152	3
Anatomy and Physiology 103	5
Child Psychology 133	3
	16

Second Year First Semester	
Physical Therapist Assisting 3 107	6
Physical Science Survey 1 131	3
Introduction to Sociology 103	3
Basic Economics 110	3
American Institutions 153	3
	18

Second Semester	
Physical Therapist Assisting 4 108	9
Issues and Answers in Physical Therapist Assisting 109	6
	15

* Those electing to take Eng 101 and 102 instead of Eng 151 and 152 will be required to take 3 additional credits - Speech 101 - before graduating.

PHYSICAL THERAPY ASSISTANT

COURSE DESCRIPTIONS

101 Orientation to Physical Therapist Assisting and Basic Health Terminology.

A foundation of knowledges, understandings, and skills common to a core of health service technologies.

Credit: 1

105 Physical Therapist Assisting 1

An introduction to rehabilitation medicine and the role of the physical therapy assistance. Psychological aspects of patient care are included. Basic pathological processes and general effects of physical agents and procedures are introduced, along with principles of basic physical therapist assisting procedures. Prerequisite: Concurrent registration in PT Asst 101.

Credit: 6

101 English 1

The object of Eng 101 is to develop the student's writing and thinking ability to the extent possible. He writes expository and argumentative compositions and reads and examines essays for both content and structure. Problems of mechanics and usage are given concentrated study.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

151 Technical Mathematics 1

The student masters the basic mathematics topics needed by technicians. Technical Mathematics 1 includes these topics: signed numbers, operations with fractions, non-fractional and fractional equations, graphing, formula rearrangement, systems of two equations, formula derivation, number system powers of ten, estimation, slide rule calculations, ratio and proportion, percent, and common logarithms. Prerequisite: 1 year of high school algebra.

Credit: 4

101 Physical Education

This coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. The student furnishes his own personal eqiupment.

Credit: 1

131 General Pshchology

An introductory course in the theory, basic concepts, methods, current research, statistical analysis and applications of psychology as the science of human and animal behavior. This course details the concerns of the science of behavior including development, motivation, learning, forgetting, thinking, perception, psychometrics, intelligence, emotion, frustration, personality, psychopathology, and social behavior. Throughout, there is emphasis on typologies, models, self-integration, and individual differences in a setting of social living.

Credit: 3

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

106 Physical Therapist Assisting 2

Psychological aspects of patient care are continued. Physical defects and disabilites; principles and uses of medical physics, and the use of physical agents - massage, exercise, other lab procedures, and supportive equipment are included through clinical experiences. Prerequisite: PT Asst 105.

Credit: 5

102 English 2

The intent of Eng 102 is to give the student further training in composition, and to enlarge his understanding and appreciation of the genres by requiring him to analyze and write about fiction, drama, and poetry. Major attention is also given to the preparation and writing of the research paper. Prerequisite: Eng 101.

Credit: 3

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

103 Anatomy and Physiology

A general course which presents the normal structural and functional activities of the human body. Each system of the body is structurally and functionally discussed. Structural anomalies and functional dysfunctions are discussed briefly. Laboratory studies of the systems are aided by the use of models and skeletons, and by student dissections of cats and other animal specimens. Prerequisite: One year of either high school biology or high school general science.

Credit: 5

133 Child Psychology

The student is introduced to the child's behavioral development through consideration of the influence and interaction of heredity, physical constitution and maturation, and socio-environmental forces from conception to adolescence. A comprehensive view of the child at each stage of growth is presented with the main focus being on the way in which various factors influence behavioral development. Concepts of normal developmental stages within specific process areas are emphasized as well as individual differences. Prerequisite: Soc Sci 131 (preferred) or Soc Sci 151.

Credit: 3

107 Physical Therapist Assisting 3

Applied physical therapy in selected medical and surgical conditions is practiced. Management of patients and preparation for treatment are included, along with techniques of lifting, positioning, and transferring. Specific physical agents such as ultrasound, whirlpool, and infrared are used. Clinical practice is included. Prerequisite: PT Asst 106

Credit: 6

131 Physical Science Survey 1

This course provides an introduction to the basic concepts of physics and chemistry, which aid the student in understanding the natural world. Topics to be covered are forces, energy, basic chemistry, electricity, optics, and the laws of motion. Not open for credit to students who have earned credit in, or who are presently enrolled in, college chemistry or physics.

Credit: 3

103 Introduction to Sociology

A study of the repetitive processes, functions, and structures which evolve from and shape group living. The significant aspects of the interaction between the individual and society are emphasized. The development and role of the major social institutions are given an application to social behavior. Through a scientific approach to the nature and meaning of culture, this course seeks to provide greater insight into the significance of contemporary social phenomena.

Credit: 3

110 Basic Economics

A general introduction to major institutions and principles which underlie our contemporary American economic system. The course is designed both to serve the general student and as an introduction to Soc Sci 111 and 112. Topics considered are: the nature of economics and economic systems, demand and supply, the measurement of economic performance, government in a free enterprise system, problems regarding business and labor organizations, and economic growth.

Credit: 3

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology, and government. Subject matter is flexible and may be altered as societal change makes it necessary.

Credit: 3

108 Physical Therapist Assisting 4

Departmental operations within a hospital or institution are studied. Specific legal aspects and records and reports are considered. Physical therapost assisting techniques are continued, along with extended clinical practice relating to these techniques. Prerequisite: PT Asst 107.

Credit: 9

109 Issues and Answers in Physical Therapist Assisting

Demonstrations of the specialized evaluation techniques used by physical therapists are presented. Self-evaluation, program evaluation, interview techniques, and a review of the profession are included. Prerequisites: PT Asst 107 and concurrent registration in PT Asst 108.

Credit: 6

101 Elements of Speech 1

The purpose of this course is the development of speaking skills with emphasis upon the dual role of speech as both a speaking and a listening activity. Stress is placed upon speech content, organization, and delivery. With practice provided through individual and group work. Growth in poise and confidence is a major goal of the course.

Credit: 3

The following is a list of High School courses that are recommended to prepare fully for the PHYSICAL THERAPY ASSISTANT program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

- Biology
- Advanced Algebra
- English Language Arts
- Developmental Writing
- Psychology
- Sociology

PSYCHOLOGIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or unviersity. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman First Semester	Credit
English 001	3
History 001	3
Natural Science	3-4
Foreign Language	3-4
Social-Behavioral Science	3
	15-17

Second Semester	
English 002	3
History 002	3
Natural Science	3-4
Foreign Language	3-4
Social-Behavioral Science	3
	15-17

Sophomore First Semester	
Mathematics-Logic-Computer	3
Literature	3
Foreign Language	3-4
Philosophy 050	3
Theology(lower division)	3
	15-16

Second Semester	
Mathematics-Logic-Computer	3
Literature	3
Foreign Language	3-4
Philosophy	3
Major or elective	3
	15-16

Junior First Semester	Credit
Literature or Fine Arts	2-3
Theology(upper division)	3
Philosophy 104	3
Major and electives	6-9
	14-18

Second Semester	
Philosophy (upper division)	3
Theology (upper division)	3
Major and electives	9-12
	15-18

Senior First Semester	
Major and electives	15-18

Second Semester	
Major and electives	15-18

Thirty-five hours including Psyc 001,060, ln3 125, and at least five courses chosen from among courses 070,111,121,127, 128, 133, 135, and 137. In addition, any three additional courses, which may include any of the aforementioned not previously taken, may be selected to fulfill the major. It is recommended that majors intending to pursue graduate study include 121,127, 128, and 195 or 199 in their course of studies.

PSYCHOLOGIST

COURSE DESCRIPTIONS

001 Modes of Discourse I

An introduction to the basic principles of rhetoric and composition. Investigation of and practice in the uses of written language in exposition, argument, and persuasion.

Credits: 3

002 Modes of Discourse II

Continuation of Engl 001, with an introducation to the uses of language in poetry, fiction, and drama. Prerequisite: Engl 001.

Credits: 3

001-002 Growth of Western Civilization

An interpretation of the evolution of Western society beginning with the ancient Near Eastern experience. Second semester begins 1715.

Credits: 3 (each)

050 Philosophy of Man

Investigation into the meaning of rational life. Knowledge, love, freedom. The significance of man as person.

Credits: 3

104 Theory of Ethics

Nature of the moral act. The norm of morality. Natural and positive moral laws. Conscience, rights and duties.

Credits: 3

001 General Psychology

Introducation to scientific psychology; biological bases of behavior; perception; principles of learning; intelligence and personality testing; current theories of personality; conflict, adjustment and mental health; interpersonal relations; social processes; applications of psychological principles to human affairs. Three hours of classroom instruction and one hour of special topics covered in laboratory discussion, film, colloquia, etc.

Credits: 4

060 Psychological Measurements and Statistics

Logic and rationale of psychological measurement. Scales of measurement and statistical techniques. Descriptive statistics, the normal distribution and sampling theory, introduction to statistical inference. T-test, simple analysis of variance, chi square, measures of correlation. Prerequisite: Psyc 001 and three years of high school mathematics or MaSt 040 or equivalent.

Credits: 3

070 Developmental Psychology I: Conception Through Childhood

Principles and theories of development with emphasis on their application to the prenatal, infancy and childhood stages of life. The effects of genetic and social factors on the adaptive capacities of the child. Emphasis on empircally obtained information. Prerequisite: Psyc 001 or equivalent.

Credits: 3

111 Social Psychology I: Introductory Social Psychology

The nature and concept of social psychology. Socialization of the child. Small group behavior including conformity, leadership, problem-solving. Attitudes and attitude change, prejudice, racism and sexism. Comparative studies in social behavior. Social Psychology of the research situation. Prerequisite: Psy 001 or equivalent.

Credits: 3

121 Psychology of Learning I: Conditioning and Learning

A comprehensive survey of methods and findings of classical and operant conditioning. Some introduction to theories of learning. Prerequisite: Psyc 001 or equivalent.

Credits: 3

127 Principles of Psychological Testing

The nature of psychological measurement. Principles of evaluation, construction and analysis of tests. Uses and classification of tests. Standards of ethical conduct in using tests. Individual and group tests of aptitude, achievement, interests, attitudes, values and personality adjustment. Prerequisite: Psyc 001 or equivalent and Psyc 060.

Credits: 3

128 History and Systems of Psychology

The development of psychological thinking from the seventeenth century to the present. The contributions of Descartes and Newton to Locke and the other British empiricists and, through them, to German mechanism and physiological psychology. The influence of Darwin, Freud, behaviorism and Gestalt psychology. The phenomenological and humanistic movement after World War II. Prerequisite: Psyc 125 or Sr. stndg.

Credits: 3

133 Personality Theory I: Psychoanalytic and Behavioristic Theories

The formulation of personality theory, its purpose and problems. Psychoanalytic and behavioristic theories of personality; their various applications to human behavior. Review of relevant research findings. Prerequisite: Psyc 001 or equivalent.

Credits: 3

135 Psychobiology

Biological foundations of behavior with emphasis on the nervous system. Physiolgical mechanism in sensation, perception, motivation, emotion and learning. Functional neuroanatomy. Prerequisite: Psyc 125 or Cons. of Instr.

Credits: 3

137 Abnormal Psychology

The nature of normality-abnormality. Defense mechanisms and neurotic symptomatology. Functional psychoses and the personality pattern disturbances. Character disorders including sociopathy and passive-aggression, the addictions and sex deviations. Organic and psychosomatic disorders. Prerequisite: Psyc 001 or equivalent.

Credits: 3

195 Readings and Research in Psychology

Independent study and research under the direction of a faculty member. Prerequisite: Cons. of Dept. Ch. Credit to be arranged.

199 Senior Thesis

Preparation of a thesis by approved students under the direction of an advisor. Prerequisite: Sr. stndg. and Cons. of Dept. Ch.

Credits: 3

The following is a list of high school courses that are recommended to prepare fully for the PSYCHOLOGIST program at any college or university in Wisconsin. See Appendix 1 for the course descriptions.

- Biology
- Chemistry
- English Language Arts
- Developmental Writing
- Writing Seminar
- Advanced Algebra
- Computer Literacy
- Three years of a foreign language
- Psychology
- Sociology

RESPIRATORY THERAPIST

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

Course Outline

First Year			Credits	
			1st Sem.	2nd Sem.
ResThp	103	Fundamentals of Respiratory Therapy 1	3	
Eng	151	Communication Skills 1	3	
Math	151	Technical Mathematics 1	4	
NatSci	109	Microbiology	4	
SocSci	151	Psychology of Human Relations	3	
ResThp	104	Fundamentals of Respiratory Therapy 2		3
Eng	152	Communcation Skills 2		3
NatSci	103	Anatomy and Physiology		5
NatSci	156	Chemistry for the Health Sciences		5
PhyEd	101	Physical Education		1
			17	17

Summer Session(Eight Weeks)			
ResThp	111	Respiratory Therapy Applications & Procedures 1	2
ResThp	115	Clinical Respiratory Therapy Experiences 1	4
ResThp	119	Biophysics of Respiratory Therapy	2
			8

Second Year				
ResThp	105	Cardiopulmonary Physiology	4	
ResThp	112	Respiratory Therapy Applications and Procedures 2	4	
ResThy	116	Clinical Respiratory Therapy Experiences 2	7	
SocSci	153	American Institutions	3	
ResThp	113	Respiratory Therapy Applications and Procedures 3		5
ResThy	117	Clinical Respiratory Theraphy Experiences 3		7
ResThp	123	Pharmacology of Respiratory Therapy		3
SocSci	110	Basic Economics		3
			18	18

RESPIRATORY THERAPIST

COURSE DESCRIPTIONS

103 Fundamentals of Respiratory Therapy 1

A comprehensive core orientation to the health sciences is presented. Specific introduction to the field of respiratory therapy is given, including history, philosophy, development of the specialty, the role of the respiratory therapist as a member of the health care team professional organizations, and special skills required in respiratory therapy. The student is assisted in developing an understanding of principles and equipment applicable to patient care. Successful completion satisfies the Orientation requirement.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

151 Technical Mathematics 1

The student masters the basic mathematics topics needed by technicians. Technical Mathematics 1 includes these topics: signed numbers, operations with fractions, non-fractional and fractional equations, graphing, formula rearrangement, systems of two equations, formula derivation, number system, powers of ten, estimation, slide rule calculations, ratio and proportion, percent, and common logarithms. Prerequisite: One year of high school algebra.

Credit: 4

109 Microbiology

Basic facts of microbiology are presented, and a general understanding is gained of various laboratory methods used to study microorganisms. Emphasis is placed on the effect of organisms on the body, immunology, and the control of microorganisms. Prerequisite: One year of biology.

Credit: 4

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

104 Fundamentals of Respiratory Therapy 2

A study of the basic principles of respiratory therapy is undertaken. The student is introduced to basic operating principles of equipment and to procedures as they relate to patient care. Emphasis is placed on safety principles of special importance to the patient, hospital, and equipment. Prerequisite: ResThp 103

Credit: 3

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

103 Anatomy and Physiology

A general course which presents the normal structural and functional activites of the human body. Each system of the body is structurally and functionally discussed. Structural anomalies and functional dysfunctions are discussed briefly. Laboratory studies of the systems are aided by the use of models and skeletons, and by student dissections of cats and other animals specimens. Prerequisite: One year of either high school biology or high school general science.

Credit: 5

156 Chemistry for the Health Sciences

Emphasis throughout is on the physiological aspects of materials involved in the functioning of living systems. The course includes a study of chemical bonding, some organic compounds of biological interest, acid-base balance, enzymes, digestion and utilization of foods, blood, and urine components, and isotopes in medicine. Lecture material is reinforced by laboratory work. Prerequisite: One year of high school chemistry or NatSci 110.

Credit: 5

101 Physical Education

This coeducational course includes active participation in various physical activites and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. The student furnishes his own personal equipment.

Credit: 1

111 Respiratory Therapy Applications and Procedures

The student begins to apply fundamental concepts to specific areas in therapy. Detailed information regarding techniques and procedures of insufflation gas therapy is examined. Intermediate principles of cardiopulmonary resuscitation are presented, principles of pharmacology are introduced, and the theory of intermittent positive pressure breathing therapy and equipment is studied. Prerequisite: Res Thp 104

Credit: 4

115 Clinical Respiratory Therapy Experiences I

The student is oriented to the overall structure and functions of the hospital. He visits each department, observing its action and patterns of total patient care. He participates in the care of patients needing respiratory therapy, and concentrates on insufflation gas therapy techniques and procedures, introductory phases of intermittent positive pressure breathing, and cardioplumonary resuscitation. Prerequisites: Res Thp 111 and 119 or concurrent registration in Res Thp 111 and 119.

Credit: 4

119 Biophysics of Respiratory Therapy

A study is made of the laws governing gases, electricity, work and motion, various forms of energy, and how they are applied to respiratory therapy treatment procedures and equipment. Prerequisites: Res Thp 104 and 111 or concurrent registration in Res Thp 111.

Credit: 2

105 Cardiopulmonary Physiology

The student acquires a broad knowledge of basic cardiopulmonary anatomy and physiology plus a general understanding of structural anomalies and dysfunctions of the cardiorespiratory system. Various pathological conditions and their recommended treatment are discussed. Prerequisite: Res Thp 115

Credit: 4

112 Respiratory Therapy Applications and Procedures 2

The student is instructed in advanced intermittent positive pressure breathing techniques, maintenance and repair of equipment, pulmonary function testing and interpretation, rehabilitation of the cardio-respiratory-diseased patient, and advanced principles of cardiopulmonary resuscitation. Prerequisites: Res Thp 105 (or concurrent registration in Res Thp 105) and Res Thp 115

Credit: 4

116 Clinical Respiratory Therapy Experiences 2

The student applies advanced principles of respiratory care by participating in the management of emergency situations, in preventive health care, and in advanced intermittent positive pressure breathing treatments. He performs, analyzes, computes, and interprets pulmonary function tests, and participates in providing chest physical therapy and rehabilitation care. He attends conferences and seminars and helps plan overall respiratory care for hospitalized patients. Prerequisite: Res Thp 112 or concurrent registration in Res Thp 112.

Credit: 7

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology, and government. Subject matter is flexible and may be altered as societal change makes it necessary.

Credit: 3

113 Respiratory Therapy Applications and Procedures 3

The student learns advanced respiratory therapy procedures and practices used in the critical care areas of the hospital. Emphasis is placed on care of patients needing prolonged ventilatory assistance; administration of a department of pulmonary physiology; and health care services available in the community. Prerequisites: Res Thp 116 and 123 (or concurrent registration in Res Thp 123).

Credit: 5

117 Clinical Respiratory Therapy Experiences 3

The student gains experience in the intensive care areas managing critically ill patients. He integrates all aspects of previous knowledge and training in planning overall care for the cardiorespiratory-diseased patient. In addition, he receives instruction in the management of a department of respiratory therapy. Prerequisites: Res Thp 113 and 123 or concurrent registration in Res Thp 113 and 123.

Credit: 7

123 Pharmacology of Respiratory Therapy

The student studies the nature, properties, and effects of drugs used in the treatment of patients with cardiopulmonary disorders. Prerequisite: Res Thp 104 or concurrent registration in Res Thp 104.

Credit: 3

110 Basic Economics

A general introduction to major institutions and principles which underlie our contemporary American economic system. The course is designed both to serve the general student and as an introduction to Soc Sci 111 and 112. Topics considered are: the nature of economics and economic systems, demand and supply, the measurement of economic performance, government in a free enterprise system, problems regarding business and labor organizations, and economic growth and development.

Credit: 3

The follwong is a list of High School courses that are recommended to prepare fully for the RESPIRATORY THERAPIST program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

Biology

Chemistry

Advanced Algebra

English Language Arts

Psychology

Economics

Developmental Writing

SPEECH PATHOLOGIST and AUDIOLOGIST

The following course outline is representative of an eductional program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman Year First Semester	Credit
English 101 Freshman English(Student should take the English Placement Test)	3
Communication 101 Introducation to Communication	3
Speech Pathology & Audiology 210 Introduction to Communicative Disorders	3
General Education Courses	6
	15
Second Semester	
Psychology 101 Introduction to Psychology	3
Speech Pathology & Audiology 312 Introduction to Phonetics	3
General Education Courses	6
Electives	3-6
	15-16
Sophomore Year First Semester	
Speech Pathology & Audiology 390 Anatomy and Physiology of the Speech, Hearing, and Language Mechanisms	4
Psychology 205 Personality	3
General Education Courses	6
Electives	3-6
	16-19
Second Semester	
Education 200 Pre-Education Field Work	2
Education 100 Pre-Education Colloquium	1
Exceptional Education 300 The Exceptional Child	3
General Education Courses	6
Electives	6
	18

Junior Year First Semester

	Credit
Speech Pathology and Audiology 410 Disorders of Articulation	3
Speech Pathology and Audiology 414 Speech and Language Problems of the Neurologically Impaired	3
Speech Pathology and Audiology 420 Basic Procedures in Audiology	3
Cultural Foundations of Education 375 Cultural Foundations of Education	4
Educational Psychology 330 Introduction to Learning and Development	4
	17

Second Semester

Speech Pathology and Audiology 315 Clinical Practice in Speech Pathology	1
Speech Pathology and Audiology 440 Normal Speech and Language Development	3
Speech Pathology and Audiology 476 Introduction to Communication Science	3
Speech Pathology and Audiology 510 Stuttering	3
Speech Pathology and Audiology 521 Advanced Procedures in Audiology	3
Educational Psychology 321 Survey of Individual Tests	3
	16

Senior Year First Semester

Speech Pathology and Audiology 315 Clinical Practice in Speech Audiology	1
Speech Pathology and Audiology 234 Student Teaching in Speech Correction	2
Speech Pathology and Audiology 412 Problems of Voice and Cleft Palate	3
Exceptional Education 425 Speechreading and Auditory Training	3
Curriculum and Instruction 279 AdHoc Course	2
Curriculum and Instruction 643 Developmental Reading in the Elementary School	3
Electives	3
	17

Second Semester

Speech Pathology and Audiology 235 Student Teaching in Speech Correction	2
Speech Pathology and Audiology 236 Student Teaching in Speech Correction	3
Speech Pathology and Audiology 660 Organization and Management of Speech Correction Programs	3
Psychology 210 Psychological Statistics	3
or	

Senior Year Second Semester (con't)	Credit
Educational Psychology 624 Educational Statistical Methods	3
Electives	3
Speech Pathology and Audiology 430 Aphasia in Adults	3
	17

SPEECH PATHOLOGIST and AUDIOLOGIST

COURSE DESCRIPTION

101 Freshman English

A course designed to improve the student's skill in reading and writing English. Required of all freshmen except those who qualify for exemption. Prereq: none.

Credit: 3

101 Introduction to Communication

The process of communication and application of basic concepts to the communication system of the individual and to a variety of interpersonal settings. Prereq: none.

Credit: 3

210 Introduction to Communicative Disorders

Consideration of the disorders of speech and related therapies. Prereq: none.

Credit: 3

101 Introduction to Psychology

The scientific study of behavior. Prereq: none.

Credit: 3

312 Introduction to Phonetics

Broad transcription; the international phonetic alphabet; standards of pronunciation; dialectical variations in America; physicological and acoustical bases of speech sounds. Prereq: none.

Credit: 3

205 Personality

Principles of personality; an overview of adaptive and maladaptive behavior patterns. Prereq: Psych 101.

Credit: 3

200 Pre-Education Field Work

Field experience designed to acquaint the student with the profession of education, and the problems in teaching and learning. Open only to students seeking teacher certification.

Credit: 2-6

100 Pre-education Colloquium 1

Classroom discussion, activities, and learning experiences related to field experience, human relations, decision-making, and career choices in education. Open to pre-Education students. Prereq: to be taken concurrently with 300-200 or cons instr.

Credit: 1

300 The Exceptional Child

Study of children who deviate from the normal; mentally retarded; gifted; visual, auditory, and orthopedic handicapped; emotionally disturbed. Field trips required. Prereq: soph st and Psych 101.

Credit: 3

410 Disorders of Articulation

Study of articulatory deviations in children and adults. Emphasis on symptomatology, etiology, and therapy. Observation of clinical activities required. Prereq: jr st, Speech Path/Audio 210 and 312, and cons instr.

Credit: 3

414 Speech and Language Problems of the Neurologically Impaired

Symptomatology, etiology, evaluation, and therapeutic procedures in aphsia, cerebral palsy, and other communication disorders related to impairment of central and peripheral nervous system functioning. Prereq: jr st, Speech Path/Audio 210, and cons instr.

Credit: 3

420 Basic Procedures in Audiology

Administration and interpretation of hearing tests; disorders of hearing; organization of hearing conservation programs; implications of hearing loss for communication. Prereq: Speech Path/Audio 390.

Credit: 3

375 Cultural Foundations of Education

Critical examination of cultural influences in American urban society as they affect education. Prereq: admission to School of Education. Not approved for grad cr.

Credit: 4

303 Introduction to Learning and Development

Principles and concepts of learning and development that contribute to the understanding and direction of school learning.
cr.)

Credit: 4

315 Clincial Practice in Speech Pathology

Supervised practice in speech clinic; two hours weekly per credit hour during the academic year; four hours weekly per credit hour during the summer session. Maybe repeated to a maximum of 6 cr. Prereq: jr st. Speech Path/Audio 410, and cons instr.

Credit: 1-3

440 Normal Speech and Language Development

Intensive study of children's acquisition of the language system and of the research techniques used in investigating children's language behavior. Prereq: jr st and Speech Path/Audio 210, 312 and 390.

Credit: 3

476 Introduction to Communication Science

Introduction to the acoustical, perceptual, and physiological parameters involved in the production and perception of speech and the relevance of same to communicative disorders; exposure to instrumentation and research techniques. Prereq: jr st, Speech Path/Audio 312 and 390, Psych 101 and cons instr.

Credit: 3

510 Stuttering

Theoretical, clinical, and experimental approaches to stuttering. Prereq: jr st, Speech Path/Audio 210, Psych 101, Psych 205 and cons instr.

Credit: 3

521 Advanced Procedures in Audiology

Calibration problems and techniques; the interpretation of audiometeric findings; the construction and function of hearing aids; selecting a hearing aid; hearing aid orientation. Prereq: jr st, Speech Path/Audio 420, and cons instr.

Credit: 3

412 Problems of Voice and Cleft Palate

Voice disorders; their sympomatology, etiology, and therapy; the nature and treatment of problems related to cleft palate. Prereq: jr. st, Speech Path/ Audio 210 and 390, and cons instr.

Credit: 3

425 Speechreading and Auditory Training

Systematic consideration of speechreading; principles and techniques of auditory training for acoustically handicapped children and adults. Clinical practice required. Prereq: cons dept.

Credit: 2-3

279 AdHoc Course

Special topics for undergraduates will be offered from time to time.

Credit: 1-3

643 Developmental Reading in the Elementary School

Study and implementation of testing and teaching strategies for skill development in reading: analysis of programs materials, and plans for organizing a developmental reading program. Prerequisite: jr st and teaching experience. Not open to students who have had 343 or 344.

Credit: 3

235 Student Teaching in Speech Correction

Prerequisite: Speech Path/Audio 315, 410 414, and 510 and eligibility for student teaching.

Credit: 2

236 Student Teaching in Speech Correction

Prerequisite: Speech Path/Audio 315, 410, 414, and 510 and eligibility for student teaching.

Credit: 3

210 Psychological Statistics

Use of statistical techniques in psychology. Lect and lab. Prerequisite: Psych 101 and satisfaction of the elementary mathematics requirement of the College of Letters and Science curriculum.

Credit: 3

624 Educational Statistical Methods I

Consideration of the common statistical techniques used in educational research including unvariate and bivariate descriptive statistics, chi square, linear regression, and analysis of variance.

Credit: 3

430 Aphasia in Adults

Nature of aphasia and related communication disorders. Study of pertinent and prognostic techniques and therapeutic procedures. Prerequisite: jr st, Speech Path/Audio 410 and 414, and cons instr.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the SPEECH PATHOLOGIST and AUDIOLOGIST program at any college or university in Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Biology

Advanced Algebra

NURSING SERVICES

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LICENSED PRACTICAL NURSE

The following course outline is representative of an education program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

Course Outline

First Semester

Nursing 101	Elmentary Nursing Procedures
Nursing 105	Medical and Surgical Nursing 1
Nursing 111	Normal Nutrition
Nursing 114	Growth and Development
Natural Science 138	Body Structure and Function

Second Semester

Nursing 106	Medical and Surgical Nursing 2
Nursing 113	Personal, Vocational and Legal Aspects
Nursing 115	The Family in Today's Society
Nursing 116	Diet Therapy
Nursing 117	Care of Mothers and Newborn
Nursing 118	Drugs and Their Administration
Nursing 119	Care of Children
Nursing 121	Care of the Mental Patient
English 115	Communication Skills 1

Summer or Winter Practicum (6 weeks)

Nursing 109	Medical and Surgical Nursing 3

LICENSED PRACTICAL NURSE

Course Descriptions

101 Elementary Nursing Procedures

Lectures and demonstrations are supplemented by laboratory practice and clinical experience. The student becomes familiar with the basic principles underlying nursing care and develops skill in nursing procedures used in the care of patients with semi-complex nursing needs. Basic mathematical measurements are incorporated into his course. Selected learning experiences are under the direct supervision of instructors.

Credit: 5

105 Medical and Surgical Nursing 1

The student is guided in the development of knowledge and understanding of the medical-surgical patient. She applies this knowledge and understanding under immediate supervision, to patient care in the clinical area. Physical, psycho-socio-economic, and spiritual needs are identified. Emphasis is placed on basic principles of nursing and rehabilitation of the adult, the aged, and the long-term medical-surgical patient.

Credit: 7

105 Medical and Surgical Nursing 2

The student continues to develop knowledge and understanding of the medical-surgical patient. Emphasis is placed on applying nursing principles with increasing skill, under supervision in the college and in the clinical laboratory, to needs of patients having specific medical-surgical conditions. Prerequisites: Nurs 101, 105, 111 and 114; Nat Sci 138; and concurrent registration in Nurs 117, 119, and 121.

Credit: 2

109 Medical and Surgical Nursing 3

The student continues to develop skills and apply knowledge and understanding of the needs of the medical-surgical patient. Various community agency aspects of patient care are explored and utilized. The student functions as a member of the nursing team, giving care to selected patients under minimal supervision. Prerequisites: Nurs 101, 105, 106, 111, 113, 114, 115, 116, 117, 118, 119 and 121; Eng 151; and Nat Sci 138.

Credit: 4

111 Normal Nutrition

The nutritional needs of the nurse, her patient, and members of the family are considered, along with the promotion of community health through good nutrition. The work includes a study of the functions of food and the basic principles of food preparation to preserve the nutrients. The managerial, economic, psychological, and nutritional values of meal planning are discussed. The principles of dietary planning are applied to different age groups.

Credit: 1

113 Personal, Vocational, and Legal Aspects

The student is acquainted with the legal responsiblities and legislation pertaining to nursing. The organization and functions of the Wisconsin Department of Regulation and Licensing, Division of Nurses; Examining Council on Practical Nurses; and other national, state, and local nursing organizations are included. Patterns of nursing care, standards of conduct, and principles of ethics are discussed. Career opportunities and employment practicies are discussed and implemented through Career Day appointments. National League for Nursing achievement tests are administered and reviewed. Prerequisites: Nurs 101, 105, 111,and 114; and Nat Sci 138.

Credit: 1

114 Growth and Development

The student is introduced to the growth and development patterns of the human being from conception through the elderly years. The course identifies the specific growth and development pattern, both physically and behaviorally, for the various age groups.

Credit: 1

115 The Family In Today's Society

The impact of society and current social problems on family life is explored. The student is assisted in developing background, knowledge, and awareness of interpersonal relationships within the family unit, and a respect for diversity in culture, personality, and personal values. Prerequests: Nurs 101, 105, 111, and 114; and Nat Sci 138.

Credit: 1

117 Care Of Mothers and Newborn

The student practical nurse gains an understanding of pregnancy and the prenatal, intra-partal, and post-partal care of the mother and newborn. Opportunities, under supervision, are provided for observation and practical application of nursing principles relating to such care. Community resources available to pregnant women and to new mothers and their families are identified. Prerequisites: Nurs 101, 105, 111 and 114; and Nat Sci 138.

Credit: 3

118 Drugs and Their Administration

This course builds on the basic skills and knowledge acquired in the preparation and administration of various classifications of medications. The student studies drugs as they relate to the various body systems; their actions and uses, side effects, usual dosage, and routes of administration; and nursing responsibilities. Prerequisites: Nurs 101, 105, 111, and 114 and Nat Sci 138.

Credit: 1

119 Care of Children

To develop an understanding of growing children, this course reviews the progressive stages of development through which a child passes. Instruction is given in safeguarding child health, including disease prevention, emergencies, and care given children in the home and hospital. Diversional activities, ethics, and responsibilities of the practical nurse are included. Supervised practice in the care of children is provided in the clinical laboratory. Prerequisites: Nurs 101, 105, 111, and 114; and Nat Sci 138.

Credit: 3

121 Care of the Mental Patient

This course provides the student with a basic understanding of the dynamics of human behavior so that she may better understand both hereself and her patients. Common behavior patterns are discussed, planned and implemented. Recent trends, therapies, and community resources are discussed in relation to the patients. Prerequisites: Nurs 101, 105, 111 and 114; and Nat Sci 138.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the LICENSED PRACTICAL NURSE program at a technical college in the state of Wisconsin. See Appendix I for the course descriptions.

Biology

English Language Arts

Meal Management

Child Development

Developmental Writing

Oral Communication

NURSE ANESTHETIST

The following course outline is representative of an educational program at any teaching hospital in the state of Wisconsin. Students are advised to consult the bulletins of the hospital of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE INFORMATION

REQUIREMENTS FOR ADMISSION

A. Meet the American Association of Nurse Anesthesia minimum requirements.
   1. High school graduate or hold high school equivalency certificate.
   2. Graduation from an approved program of nursing.
   3. Hold current licensure as a registered nurse and qualified for licensure in the State of Wisconsin.

B. In addition, the school requires the following criteria:
   1. Graduate from a two-year diploma program or from an associated degree program require experience as a professional registered nurse for a period of at least two years.
   2. Graduate of a three year diploma, requires a minimum of one year's experience as a professional registered nurse.
   3. Graduates holding a Bachelor's Degree in nursing, a minimum of one year's experience as a professional registered nurse is required.
   4. The age requirement is twenty to forty years at the time of acceptance.
   5. Although grades and grade point averages are not the basic criterion for selection, it has a bearing on potential of the candidate. The overall grade point average must not be below 3.0 (based on 4 = A). Based on evaluation of the faculty of correlation of other factors involved in the criteria of the candidate, students with a total average below 3.0 may be accepted.
   6. A personal interview will be requested at his own expense following the required processing of credentials.

Approximately 500 hours of classroom instruction are given in the course of anesthesiology. Each student is guided in the correlated theoretical knowledge with actual clinical application in the administration of anesthesia. Within the 18 months, students experience administering 450 anesthetics (as required by the American Association of Nurse Anesthetists) and exceeding 600 hours of actual anesthesia time.

The following is a complete curriculum as outlined by the Association of Nurse Anesthetists.

I. Orientation to the study of anesthesia
   A. Department management and organization
   B. Ethics
   C. History of anesthesia
   D. Legal aspects of anesthesia
   E. Professional adjustments and psychology
   F. Orientation to physical plant

II. Anatomy, physiology and pathophysiology in relation to anesthesia
   A. Review of general anatomy and physiology
   B. Nervous system

- C. Respiratory system
- D. Circulatory system
- E. Endocrine system
- F. Excretory system

III. Chemistry and physics in relation to anesthesia
- A. Fundamentals of chemistry and physics
- B. Anesthetic agents
- C. Accessory drugs
- D. Therapeutic drugs
- E. Explosions
- F. Biochemistry

IV. Pharmacology in relation to anesthesia
- A. Stages and Signs of Anesthesia
- B. Anesthetic Agents
- C. Accessory Drugs

The following is a list of high school courses that are recommended to prepare fully for the NURSE ANESTHETIST program at any teaching hospital in the state of Wisconsin. See Appendix I for the course descriptions.

See REGISTERED NURSE (BACCALAUREATE DEGREE PROGRAM) for the recommended courses.

NURSING ASSISTANT

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

510-330 Pre-Service Nursing

Note: 90 hours Classroom and clinical laboratory practice.
90 hours Clinical Experience.

Credit: 5

NURSING ASSISTANT

COURSE DESCRIPTIONS

510-330 Pre-Service Nursing Assistant

This course is designed to prepare students for initial employment in hospitals and nursing homes where the nursing assistant's work is assigned and supervised by registered professional nurses. Nursing assistants perform selected tasks supportive to practice as a member of the nursing team.

Credits: 5

The following is a list of high school courses that are recommended to prepare fully for the NURSING ASSISTANT program at any technical college in the state of Wisconsin. See Appendix I for course descriptions.

Biology

English Language Arts

Meal Management

Child Development

Developmental Writing

REGISTERED NURSE (ASSOCIATE DEGREE)

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

FIRST YEAR

First Semester			Credits
Nurs	172	Nursing Fundamentals	7
NatSci	103	Anatomy and Physiology	5
NatSci	109	Microbiology	4
			16

Second Semester			
Nurs	174	Nursing in Physical and Mental Illiness I	7
*Eng	101	English I or	
Eng	151	Communication Skills	3
NatSci	156	Chemistry for the Health Sciences	5
SocSci	131	General Psychology	3
			18

SUMMER SESSION

**Nurs	175	Nursing in Physical & Mental Illiness 2	4

SECOND YEAR

First Semester			
**Nurs	176	Nursing in Physical & Mental Illiness 3	4
**Nurs	178	Maternal and Child Health I	4
*Eng	102	English 2 or	
Eng	152	Communication Skills 2	3
PhyEd	101	Physical Education	1
SocSci	133	Child Psychology	3
			15

Second Semester			
**Nurs	179	Maternal and Child Health 2	4
Nurs	182	Nursing Process: Transition and Trends	6
SocSci	103	Introduction to Sociology	3
SocSci	110	Basic Economics	3
			16

*Those electing to take Eng 101 & 102 instead of Eng 151 & 152 will be required to take 3 additional credits - Speech 101 - before graduating. This course may be taken in day or evening school.

** Because of the varying requirements of cooperating institutions, Nurs 175, 176, 178 and 179 will not necessarily be scheduled in the order shown here.

REGISTERED NURSE (ASSOCIATE DEGREE)

Course Descriptions

172 Nursing Fundamentals

The student becomes familiar with basic nursing principles and fundamental skills related to comprehensive nursing care. Learning progresses from the simple to the complex through the use of problem-solving in the classroom, in the college and hospital laboratories, and through the student's oral and written communications. Successful completion satisfies the Orientation requirement.

Credit 7

103 Anatomy and Physiology

A general course which presents the normal structural and functional activities of the human body. Each system of the body is structurally and functionally discussed. Structural anomalies and functional dysfunctions are discussed briefly. Laboratory studies of the systems are aided by the use of models and skeltons, and by student dissections of cats and other animal specimens. Prerequisite: One year of either high school biology or high school general science.

Credit: 5

109 Microbiology

Basic facts of microbiology are presented, and a general understanding is gained of various laboratory methods used to study microorganisms. Emphasis is placed on the effect of organisms on the body, immunology, and the control of microorgnaisms. Prerequisite: One year of biology.

Credit: 4

174 Nursing In Physical and Mental Illness 1(Level 2-Developing the Nursing Process)

The nursing needs of patiens with selected physical or mental conditions are examined. Preventive and therapeutic knowledges and skills are utilized. Emphasis is placed on the patient as an individual, a member of the family, and a member of the community. Commonalities of nursing principles and their application in the clinical laboratory are also emphasized. Clinical and college laboratories, patient care plans, clinical resources, problem solving and small group discussions implement the course. Prerequisites: Nurs 172 and NatSci 103 and 109.

Credit: 7

101 English 1

The object of Eng 101 is to develop the student's writing and thinking ability to the extent possible. He writes expository and argumentative compositions and reads and examines essays for both content and structure. Problems of mechanics and usage are given concentrated study.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

156 Chemistry for the Health Sciences

Emphasis throughout is on the physiological aspects of materials involved in the functioning of living systems. The course includes a study of chemical bonding, some organic compounds of biological interest, acid-balance, enzymes, digestion and utilization of foods, blood and urine components, and isotopes in medicine. Lecture material is reinforced by laboratory work. Prerequisite: One year of high school chemistry or Nat Sci 110.

Credit: 5

131 General Psychology

An introductory course in the theory, basic concepts, methods, current research, statistical analysis, and applications of psychology as the science of human and animal behavior. This course details the concerns of the science of behavior including development, motivation, learning, forgetting, thinking, perception, psychopathology, and social behavior. Throughout, there is emphasis on typologies, models, self-integration, and individual differences in a setting of social living.

Credit: 3

175 Nursing In Physical and Mental Illness 2

This course will enable the student to care for persons in a goal-related context. Goal identification is seen as an indicator of the means to successful nursing practice. The student will further develop her understanding of common, recurrent health problems based on a mobility/immobility frame of reference. Through group process, self-study, lectures, seminar discussions, clinical experience, and use of goal-directed nursing activity, the student will conceptualize the interrelationships of the pathophysiologic and the psychologic aspects of mobility/immobility as they affect the person. Prerequisites: Nurs 174 and NatSci 156.

Credit: 4

178 Material and Child Health 1

Instruction is geared to the development of beginning skills in the nursing care of mothers and infants and to the acquisition of knowledge concerning the maternal cycle and the newborn. Normal aspects of maternity, the normal infant, and deviations from normal in the mother and baby are studied. Teaching methods include lectures, discussions, demonstrations, field trips, clinical conferences, and experience in maternity departments. Auto-tutorial media are used extensively. Prerequisites: Nurs 174 and NatSci 156.

Credit: 4

102 English 2

The intent of Eng 102 is to give the student further training in composition, and to enlarge his understanding and appreciation of the genres by requiring him to analyze and write about ficition, drama, and poetry. Major attention is also given to the preparation and writing of the research paper. Prerequisite: Eng 101.

Credit: 3

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

101 Physical Education

This coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. The student furnishes his own personal equipment.

Credit: 1

133 Child Psychology

The student is introduced to the child's behavioral development through consideration of the influence and interaction of heredity, physcial constitution and maturation, and socio-environmental forces from conception to adolescence. A comprehensive view of the child at each stage of growth is presented, with the main focus being on the way in which various factors influcence behavioral development. Concepts of normal developmental stages within specific process areas are emphasized as well as individual differences. Prerequisite: Soc Sci 131(preferred) or Soc Sci 151.

Credit: 3

179 Maternal and Child Health 2

As a member of the health team, the student considers technical and mental health aspects in caring for the hospitalized child and supporting the child's family. Knowledge of available community resoucres is obtained through field trip experiences, including agencies for both the well and the handicapped child. Prerequisities: Nurs 174 and Nat Sci 156.

Credit: 4

182 Nursing Process: Transition and Trends

This course encompasses mastery of the nursing process. The student through formal study and clinical experiences in medical-surgical areas, begins to recognize her role in relation to the total nursing and health team and to function as both member and leader in selected situations. She is able to synthesize elements of the nursing process in promoting patient comfort. Prerequisites: Nurs 175, 176, 178 and 179.

Credit: 6

103 Introduction to Sociology

A study of the repetitive processes, functions, and structures which evolve from and shape group living. The significant aspects of the interaction between the individual and society are emphasized. The development and role of the major social institutions are given an application to social behavior. Through a scientific approach to the nature and meaning of culture, this course seeks to provide greater insight into the significance of contemporary social phenomena.

Credit: 3

110 Basic Economics

A general introduction to major institutions and principles which underline our contemporary American economic system. The course is designed both to serve the general student and as an introduction to SocSci 111 and 112. Topics considered are: the nature of economics and economic performance, government in a free enterprise system, problems regarding business and labor organizations, and economic growth and development.

Credit: 3

The following is a list of high school courses that are recommended to prepare for the REGISTERED NURSE (Associate Degree) program at a technical college in the state of Wisconsin. See Appendix I for the course descriptions.

- Biology
- Chemistry
- Advanced Biology
- Advanced Chemistry
- Advanced Algebra with Trigonometry*
- Advanced Algebra*
- Psychology
- Economics
- Sociology
- English Language Arts
- Developmental Writing
- Writing Seminar

*In lieu of Advanced Algebra with Trigonometry you may elect to take Advanced Algebra.

REGISTERED NURSE (BACCALAUREATE DEGREE)

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman Year, Prenursing	Credits
General College Chemistry	0-5
English	0-3
Philosophy	4
Sociology or Anthropology	3
Bacteriology	2
Human Anatomy	2-3
Biochemistry	3
Psychology	3-4
Nursing 101	3
Electives	0-3
Humanities Electives	3-8

Sophomore Year	
Growth and Development	6
Human Physiology	5
Nursing 105	2
Nursing 102	3
Pathology 402	4
Nursing 220 or 230	4
Humanities Electives	3
General Electives	3-4

In the junior year each student chooses either Primary Health Care or Secondary Health Carer Nursing. The choice is between Primary Health Care courses, Nursing 320, 420 and 421 and Secondary Health Care courses Nursing 330, 430 and 431.

Junior Year	Credits
Nursing 220 or 230	4
Medical Microbiology 104 (optional)	2
Nursing 301	4
Nursing 302	2
Nursing 310	3
Nursing 320 or 330	4
Pharmacology 401	3
Humanities Elective	3
General Electives	5
Senior Year	
Nursing 415	3
Nursing 401	2
Nursing 402	2
Nursing 420 or 430	4
Nursing 421 or 431	5
Humanities Elective	0-3
Nursing Elective	4
Electives	7

REGISTERD NURSE (BACCALAUREATE DEGREE)

ABBREVIATIONS

I	Course given during the first semester
II	Course given during the second semester
SS	Course given during the Summer Session
con reg	Concurrent registration
cr	Number of credit hours per semester
equiv	Equivalent
prereq	Prerequisite(s)
Fr, So, Jr, Sr st	Freshamn, sopomore, junior, senior standing
cons instr	Consent of instructor

GENERAL EDUCATION COURSES

English I,II,SS: 3 cr. All freshmen must take placement tests to determine level of competence in English. Those whose performance indicates the need for additional study of English meet this requirement through immediate enrollment in and successful completion of English 101. Any student who later is reported careless or deficient in composition may be required to take additional English.

Physical Education I,II: 0 cr. All freshmen must register for required physical education until they have satisfied the one semester requirement or are exempt.
Exemptions listed in the Timetable may be applied for during registration week.

Chemistry I,II, SS. Students who have not taken high school chemistry and any student who does not pass satisfactorily a placement examination in basic concepts from chemistry will need to include a beginning college Chemistry course, e.g.
Chem. 103, 4 cr., 107, 5 cr., or 108, 5 cr.

Philosophy I,II, SS. A 3-4 cr. introductory course.

Sociology I,II, SS; 3 cr. Survey course open to freshmen. Anthropology may be substituted.

Bacteriology I,II, SS. A 2 or 4 cr. course open to freshmen, e.g., Bact. 101 or 110.

Biochemistry I,II; 3 cr. Introductory college course; Biochem. 201, Phys. Chem 114, or Nutr. Sci. 201, meet this requirement.

Psychology I,II, SS. Introduction; e.g., Psychol 201, 4 cr., or 202, 3 cr.

Anatomy II; 2 cr. Human, e.g. 104.

Physiology I,II,SS; 5 cr. Human, e.g. Physiol. 235.

Growth and Development I,II; 6 cr. Home Mgt. [illegible] or Psychol 560 or Ed Psych 320, 3 cr. and Home Mgt 363 or Soc. 422, 3 cr.

Pathophysiology 402 II; 4 cr. Primarily for schools of pharmacy and nursing to provide a background in understanding of mechaisms and pathology of disease states. Prereq: required for students in pharmacy and nursing; for others cons instr.

Pharmacology 401 I 3 cr. Emphasis on physiologic mechanisms of drug action and use of drugs as therapeutic agents in treatment of disease states. Prereq: Physiol 235; Biochem. 501 or 201 or Phys. Ch. 114.

Medical Microbiology 104 II; 2 cr. Survey of communicable diseases. Nature of the causative agents and methods of control with particular application to nursing; lecture. Prereq: Jr in nursing or cons instr.

Humanities Electives may be chosen from Art History, Classics, English Foreign Language, Music Appreciation, Philosophy, History and Communication Arts courses designated as humanities.

General Electives Usually between 22 and 23 credits.

NURSING COURSES
692 (Curricular Area Number)

Enrollment in nursing courses, with the exception of Nursing 101, 105 and 415 is limited to students who have the NUR or NRN classification.

NOTE: Some changes in course prerequisites may occur. Some courses may be offered in summer session. The advising service will have the latest information.

CORE COURSES REQUIRED OF ALL STUDENTS

101 Introduction to Nursing I,II; 3 cr. Developing a basic conceptual framework for nursing practice and introduction of selected skills for assessing and meeting the needs of clients; skills for self-evaluation and independent study. Open to freshmen.

102 Nursing As A Process I,II; 3 cr. Continued development of concepts introduced in Nursing 101; development of knowledge and skills for planning, implementing and evaluating selected nursing care functions in a clinical setting. Prereq: N101

105 Health Care Systems: Interdisciplinary Approach I,II; 2 cr. definition and philosophy of health; health care team; organization and delivery of health services. Prereq: So st for students in nursing.

301 Health History and Patient Assessment I, II; 4 cr. Introduction to basic techniques of taking a health history and performing a physical examination, using pertinent instruments, to ascertain gross deviations from normal. Prereq: N102; Anat 104 or equiv; Physiol 235 or equiv; Pathol 401; Home Mgt. 362, 363 or equiv.

302 Introduction to Systemative Investigation I, II; 2 cr. Characteristics of qualitative and quantitative data and of research process to permit analysis and evaluation of patient data and of published nursing studies. Prereq: N202 or 230.

310 Psychopathology of Human Behavior I, II; 3 cr. Theory, manifestations, treatment modalities, and nursing intervention in pathological human behavior. Prereq: Psychol 201, Home Mgt 362 and 363, or equiv; con reg in an intermediate or upper level clinical nursing course; or cons instr.

410 Legal and Social Forces in Nursing I, II; 2 cr. Legal, social and ethical forces and issues relevant to the education of nurses and the practice of nursing. Prereq: Con reg in junior level nursing courses.

402 Strategies of Effecting Change in Nursing Situations I, II; 2 cr. Concepts and principles of teaching-learning and leadership commonly used by nurses to effect change in nursing care situations. Prereq: Con reg in senior level clinical nursing course or cons instr.

415 Health Care Team: Roles and Conflicts I,II,SS; 3 cr. Focus on roles of various health professionals and factors influencing effectiveness of interdisciplinary health care teams. Including sources and resolutions of conflict. Prereq: N105, 320 or 330, or cons instr.

CONCENTRATION COURSES

Two introductory courses, N220 and 230, are required of all students. Following completion of these courses, the student chooses either Primary or Secondary Health Care as an area of concentration and takes three courses in the area chosen, one at the intermediate level(junior year in nursing) and two at the advanced level (senior year of nursing).

220 Introducation to Primary Health Care: The Role of the Nurse I,II; 4 cr. Acquisition and application of concepts and skills. The skills students learn are those specifically valuable to primary health care nursing; use of nursing process in primary health care. Prereq: N102; Physiol 235 or equiv; con reg Home Mgt. 362 or 363 or con reg.

230 Introduction to Secondary Health Care: The Role of the Nurse I,II; 4 cr. Acquiring knowledge and developing skills basic to care of the ill individual and family, using the nursing process. Prereq So st; N102; Anat. 104 or equiv; Physiol 235 or equiv; Pathol 402 recommended or con reg.

320 Primary Health Care Nursing With Groups and Communities I,II; 4 cr. Emphasis on concepts of health maintenance and prevention of illness. Includes application of the nursing process to groups and communities. Prereq: N220, 230 or cons instr.

420 Primary Health Care Nursing in Reversible Health Problems and Health-Related Situations I,II; 2 or 4 cr. (lecture only 2 cr). Knowledge and skills to collaborate in identifying potential and existing health problems of individuals and families; provide nursing care for those with reversible health states. Prereq: N220; 230; 301; Pharm 401; or cons instr.

421 Primary Health Care Nursing in Irreversible Health Problems and Health-Related Situations I, II; 2-5 cr.(lecture only 2 cr.). Emphasis on concepts and skills used in the nursing managment of individuals and families experiencing chronic health problems. Prereq: N420 or cons instr.

330 Nursing Intervention in Illness I, II; 2-4 cr. (lecture only, 2 cr.). Nursing care of the hospitalized individual and the family, including different age levels and stages of illness. Prereq: N220; 230; Pathol 402 or cons instr.

430 Nursing Intervention in Complex Illness I, II; 2-4 cr. (lecture only, 2 cr.). Nursing care of the individual hospitalized with complex problems, including different age levels and stages of illness. Prereq: N301; 310;330 or cons instr.

431 Advanced Concepts of Nursing Related to Acute and Long Term Care I,II; 5 cr. Advanced nursing care of individuals with acute and chronic illness. Prereq: N430; Pharm 401.

ELECTIVES

299 Independent Reading 1-8 cr.

360 Human Sexuality I, II; 2 cr Explores concepts and their significance to nursing interventions for clients in various states of health or dysfunction. Prereq: Jr. St; Anat. 104 or equiv; Physiol 235 or equliv; Home Mgt 362 and 363 or equiv; or cons instr.

540 Clinical Study of Perinatal Health Care of Families with Uncomplicated Pregnancy I, II; 3 or 5 cr. Concepts and skills necessary to promote and maintain throughout the perinatal period the health of families with uncomplicated pregnancy. Prereq: N301 or cons instr.

541 Clinical Study of Perinatal Health Problems of Families at Risk I,II; 3 or 6 cr. Nursing management of high risk maternity patient and her fetus and newborn during the maternity cycle and the interpregnancy period. Prereq: N301 or cons instr.

400

560 Cardiopulmonary Critical Care I,II; 3 cr. Mechanisms of cardiopulmonary failure, patient-monitoring systems and significance of pathophysiologic changes. Prereq: Physiol 235 or equiv; Sr st, or cons instr.

580 Contemporary Practices in Nursing I,II; 1-4 cr Current health problems and nursing management; a clinical component may be offered. Prereq: As stated for each course offering or cons instr.

699 Independent Study in Nursing I,II; 1-8 cr. Prereq: Cons instr. Guidelines are available from the Office of the Associate Dean of Baccalaureate Program.

The following is a list of high school courses that are recommended to prepare fully for the REGISTERED NURSE (BACCALAUREATE DEGREE) program at any college or university in Wisconsin. See Appendix I for the course descriptions.

- Biology
- Chemistry
- Advanced Biology
- Advanced Chemistry
- Advanced Algebra with Trigonometry*
- Advanced Algebra*
- Psychology
- Economics
- Sociology
- English Language Arts
- Expository Writing
- Writing Seminar

*In lieu of Advanced Algebra with Trigonometry you may elect to take Advanced Algebra.

REGISTERED NURSE (HOSPITAL DIPLOMA)

The following course outline is representative of an educational program at any teaching hospital in the state of Wisconsin. Students are advised to consult the bulletins of the hospital of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Level I	Credits
Semester I	
*Chemistry 108	6
*Anatomy & Physiology 202	4
Communications 101	3
*Psychology 101	3
Nursing 101	3
Semester II	
*Anatomy & Physiology 203	4
*Microbiology 101	4
*English 101	3
*Sociology 130	3
Nursing 102	4
Level II	
Semester I	
Nursing 201	8
**Semester II	
Nursing 202	16
**Semester III	
Nursing 203	16
Level III	
**Semester I	
Nursing 301	16
**Semester II	
Nursing 302	16
Semester III	
Nursing 303	8

*University of Wisconsin-Milwaukee courses.

**Semester courses may be taken out of sequence due to rotation plan.

REGISTERED NURSE (HOSPITAL DIPLOMA)

Course Descriptions

BIOLOGICAL AND PHYSICAL SCIENCES

*202 & 203 Anatomy and Physiology

Structureof the human body and physiology of the organ system. Required of students in the School of Nursing and in the medical technology program.

Credit: 8

*108 General Chemistry 1

Elementary inorganic and organic chemistry for students with little or no previous science, giving students the background necessary for the field of nursing.

Credit: 6

*101 General Survey of Microbiology

Study of the nature and activities of micro-organisms. Topics include surveys of bacteria, fungi, viruses, immunology, and disease application.

Credit: 4

SOCIAL SCIENCES AND HUMANITIES

*101 Introduction to Psychology

The scientific study of behavior and the biological basis of psychology.

Credit: 3

*130 Freshman English

A course designed to improve the student's skill in reading and writing English. Required of all freshmen except those who qualify for exemption.

Credit: 3

*101 Introduction to Communication

The process of communication and application of basic concepts to the communication system of the individual and to a variety of interpersonal settings.

Credit: 3

*Taught at the University of Wisconsin-Milwaukee

NURSING

Level 1 Adaptation

Nursing 101

The course will allow the student to trace the evolution of the nursing role through history. The course also includes an introduction to Roy's Adaptation theory and the nursing process. The course will introduce the student to the role of the nurse and her assessment of the patient in the self-concept, role function, and interdependence modes. Learning activities will be designed to facilitate the student's assessment of an individual's base-lines and adaptive coping mechanisms in each of the psychological modes.

Credits: 3

Nursing 102

This course is offered in the spring semester of Level 1. The course encompasses the assessment of the physiological mode. The emphasis of theory will be on the normal behaviors of the physiological needs and on some basic problems within each need. Learning activities will include the multi-media lab for the acquisition of basic nursing skills and clinical practice and the practice of nursing skills.

Credits: 4

Level II - One Adaptive Problem

Nursing 201

Nursing 201 builds on the basic conepts of adaptation the student has gained in Nursing 101 and 102. From beginning understandings of adaptation the course develops further the student's conceptualization of adaptation. Nursing 201 is placed at the beginning of Level II, during the summer term. Emphasis in Nursing 201 is on the physiological needs of man for nutrition, elimination, and mode of role mastery-the sick role. Rest and exercise nursing measures are determined by each individual's particular response to illness. The student uses the nursing process to alter specific environmental stimuli to facilitate man's return to wellness.

Credits: 8

Nursing 202

Nursing 202 further develop's man's adaptations. Within Level II Nursing 202 is placed in either the fall or spring term, so that Nursing 202 interchanges with Nursing 203. The components included are physiological needs of oxygen and circulation, regulation of temperature, and the mode of self-concept. The nurse's role is continued as a developmental thread where decision making focuses upon several patien and communication with other health team members. Common maladaptive problems are presented in each one of these related areas. Clinical and laboratory facilities enhance the learning process in these modes.

Credits: 16

Nursing 203

Adaptations of man are continued through Nursing 203. Within Level II Nursing 203 is placed in either the fall or spring term, so that Nursing 203 interchanges with Nursing 202. A particular focus is upon the physiological needs of fluid and electrolytes, regulation of endocrine systems, regulation of senses, and modes of role function and interdependence. The student learns assessment of these needs and appropriate nursing interventions. Common maladptive problems are presented in each one of these related areas. Clinical and laboratory facilities enhance the learning process in these modes.

Credits: 16

Level III - Reproductive and Developmental Adaptation

Nursing 301

This course is designed to instruct the student in the multiple adaptive and maladaptive situations that (1) pregnancy, labor, and delivery place on the childbearing woman and her family and (2) affect the child from the time of conception through infancy, toddler, pre-school, school age, and adolescent periods of growth. Emphasis throughout the course is upon the interaction of family members and how, through assessment, planning, intervention, and evaluation, the student may reinforce this interaction.

Credits: 16

Level III-Multiple Adaptive Problems

Nursing 302

The intent of this course is to study the nursing care, based on Roy's Adaptation theory, of patients with multiple adaptive problems. The emphasis is upon the relationships of the various modes. Clients' health problems are identified in respect to the effect of other influential modes. Another focus is the differentiation of nursing care in crises versus restorative-maintenance phases. An inter-weaving component through the content is the nurse's role in facilitating adaptation to crises and restorative aspects of illness by the patient and family members. Health problems included result in a protracted change in life style in either the physical or psychosocial areas. Clinical learning experiences provided are in acute and chronic faiclities, ranging from critical care to rehabilitative settings, in order to develop nursing skills essential for the care of patients with multiple adaptive problems.

Credits: 16

406

Nursing 303

Nursing 303 is a nursing practicum to facilitate the adjustment from student to graduate nurse. Learning experiences are provided for the development of leadership and management skills. The course includes the legal aspects of supervision, motivation of others, problems specific to a manager, communication skills of a group leader, and the teaching function of a manager. The facilities of an acute care institution are utilized during all patient care hours.

Units: 8

The following is a list of high school courses that are recommended to prepare fully for the REGISTERED NURSE (Hospital Diploma) program at any teaching hospital in the state of Wisconsin. See Appendix I for the course descriptions.

Biology

Chemistry

Advanced Biology

Advanced Chemistry

Advanced Algebra

Psychology

Sociology

English Language Arts

Developmental Writing

Writing Seminar

OPERATING ROOM ASSISTANT

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester	Credit
Orientation. Legal Aspects and Employment Practice 102	1
Operating Room Procedures 1 103	6
Microbiology 150	3
Communication Skills 1 151	3
Body Structure and Function 138	3
	16

Second Semester	
Operating Room Procedures 2 105	3
Operating Room Clinical Practice 106	7
Communication Skills 2 152	3
Psychology of Human Relations	3
	16

OPERATING ROOM ASSISTANT

COURSE DESCRIPTIONS

102 Orientation, Legal Aspects, and Employment Practices

A course designed to orient students to MATC and help them make a successful adjustment to assisting in the operating room. It defines a code of ethics and its relation to the operating room assistant, and explores the legal responsibilities of the operating room assistant to the patient and his family, the doctor, and the hospital. Employment opportunities for the operating room assistant are discussed, and the professional organization for the operating room assistant is described. Prerequisite: Concurrent registration in OR Asst 103.

Credit: 1

103 Operating Room Procedures 1

Designed to provide fundamental knowledge of the operating room and its related departments (central service room, emergency room, and recovery room); to provide principles of aseptic techniques and surgical procedures used in the operating room and emergency room; and to assist the student in understanding the responsibilities of the operating room assistant (technician) as a safe functioning member of the surgical team. Prerequisite: Concurrent registration in OR Asst 102 and 150, and in Nat Sci 138.

Credit: 6

150 Microbiology

The student acquires fundamental knowledge of basic microbiology plus a general understanding of laboratory methods used to study the various pathogenic microorganisms. Emphasis is placed on morphology, methods of laboratory cultivation, and study of the more common pathological microorganisms. Prerequisite: Concurrent registration in OR Asst 102 and 103.

Credit: 3

151 Communication Skills 1

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grow in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

138 Body Structure and Function

A survey of the normal structure and function of the human body. Some structural anomalies and functional dysfunctions are discussed. Laboratory exercises are performed for a better understanding of the structure and function of the human body. Prerequisite: One year of high school biology or general science.

Credit: 3

105 Operating Room Procedures 2

In three clinical classes each week, techniques are reviewed and/or demonstrated;new material pertinent to clinical experience is presented; and questions arising from surgical work performed by the student that week are reviewed or answered. Prerequisites: OR Asst 102, 103 and 150; and Nat Sci 138.

Credit: 3

106 Operating Room Clinical Practice

Instruction includes actual surgical participation as an assistant to the nurse supervisor and surgeon in hospital areas. This practice includes central service and emergency room procedures as well as the operating room. Prerequisite: Concurrent registration in Or Asst 105.

Credit: 7

152 Communications Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151 or 101 with the permission of department.

Credit: 3

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the OPERATING ROOM ASSISTANT program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

Biology

English Language Arts

Psychology

Developmental Writing

PHARMACY

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PHARMACIST

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

PREPHARMACIST CURRICULUM

First Year First Semester	Credit
English 101	3
Math 211, Calculus	4
Chemistry 103, General Chemistry	4
Electives	4
	15

Second Semester	
English 101	3
Chemistry 104, General Chemistry & Qualitative Analysis	5
Zool. 101 Animal Biology, 3 credits, and Zool. 102, Animal Biology Laboratory 2 Credits.	5
Electives	3
	16

Second Year First Semester	Credit
Chem. 343, Introductory Organic Chemistry	3
Physics 103, General Physics	4
Econ. 101 or 103, General Economics	4
Electives	5
	16

Second Semester	
Chem. 344, Introductory Organic Chemistry Lab	2
Chem. 345, Intermediate Organic Chemistry	3
Physics 104, General Physics	4
Electives	6-7
	15-16

PREPHARMACIST

COURSE DESCRIPTIONS

101 Freshman English, I, II;

Furnishes the mechanical competence and clarity of expression necessary for writing skill. Prerequisite: Assignment by Placement Tests.
Credit: 3

211 Calculus and Related Topics. I, II;

Primarily for students in L & S who wish to acquire some knowledge of the development of mathematics and its use in the modern world. Topics: the essential concepts of differential and integral calculus and perhaps other topics such as linear algebra, linear programming and probability. Students preparing for further study in advanced mathematics (e.g., Majors in mathematics, physics, etc.) should take the sequence Math. 221-222, 223. Prerequisite: (i) Advanced mathematical competence-Algebra and satisfactory placement scores (or Math. 112); and (ii) Advanced mathematical competence-Trigonometry and satisfactory placement scores or Math. 113. Credit: 4

103 General Chemistry. I, II

Introduction. For students taking one year or more of college chemistry; serves as a prerequisite for Chem. 104; lecture, lab and quiz.
Credit: 4

104 General Chemistry and Qualitative Analysis

Continuation of Chemistry 103. I,II,
Credit: 5

101 Animal Biology I, II;

General biological principles; structure and function of the cell, genetics, development and evolution; and the physiology of vertebrate organ systems.
Credit: 3

102 Animal Biology Lab I, II;

Prerequisite: Zool. 101 or con reg.
Credit: 2

343 Introductory Organic Chemistry I,II;

For those students expecting to take two semesters of organic chemistry. Prerequisite: Cehm. 104 or 109.
Credit: 3

415

103 General Physics. I, II

An introductory physics course at the non-calculus level. Not recommended for students in the physical sciences and engineering. Principles of mechanics, heat, and sound, with applications to a number of different fields. Two lectures, two discussion sections and one two-hour lab per week. Prerequisite: High school mathematics including basic trigonometry. Recommended for students who do not need a calculus level course.

Credit: 4

101 General Economics. I, II

Emphasizes problems and policies for students not planning to major in economics. Economic institutions; markets and prices; and business fluctuations; economic growth. Problem areas currently in the news. May not be taken for credit by students who have had or are currently enrolled in Econ. 103 or 104. Students planning to major in economics or business and students who desire a broad basic one-year course in economics should take the 103-104 sequence below.

Credit: 4

344 Introductory Organic Chemistry Lab. I, II

Prerequisite: Chem. 341 or 343.

Credit: 2

345 Intermediate Organic Chemistry I, II

Prerequisite: Chem. 343 with grade of C or better.

Credit: 3

104 General Physics. I, II

A continuation of Physics 103. An introductory physics course at the non-calculus level. Not recommended for students in the physical sciences and engineering. Principles of electricity and magnetism, light, optics, atomic and nuclear physics, with applications to a number of different fields. Two lectures, two discussion sections, and one two-hour lab per week. Prerequisite: Physics 103. Recommended for students who do not need a calculus level course.

Credit: 4

PHARMACIST CURRICULUM

First Year First Semester	Credits
Pharmacy 373, Pharmaceutics I	4
Pharmacy 401, History of Pharmacy	3
Pharmacy Chemistry 324, Pharmacuetical Analysis	4
Phm. Chemistry 332, Pharmaceutical Chemistry	4
	15

Second Semester	
Pharmacy 374, Pharmaceutics II	4
Bact. 303, General Microbiology	4
Pathol. 402, Survey of Disease States	4
Physiol. 235, Physiology	5
	17

Second Year First Semester	
Pharmacy 475, Pharmaceutics III	3
Phmcol. 460, Pharmacology I	5
Phmcog. 441, Chemotherapeutics	4
Phm. Chem. 431, Medicinal Chemistry I	3
Elective	1-2
	16-17

Second Semester	
Pharm. 476, Pharmaceutics IV	3
Phmcol. 461, Pharmacology II	4
Phm. Chem. 432, Medicinal Chemistry II	3
Phm. Admin. 441, Pharmacy Management	3
Pharmacy 610, Social Aspects of American Pharmacy	2
Elective	1
	16

Third Year First Semester	
Pharmacy 565, Pharmaceutics V	3
Pharmacy 652, Therapeutics I	3
Pharmacy 665, Clinical Pharmacy Clerkship I	2
Pharmacy 670, Therapeutic Drug Interactions	2
Electives	6
	16

Second Semester	
Pharmacy 566, Pharmaceutics VI	2
Pharmacy 653, Therapeutics II	2
Pharmacy 662, Clinical Pharmacy Clerkship II	1
Phmcol. 552, Toxicology	3
Phm. Admn. 511, Pharmacy Jurispurdence & Ethics	3
Electives	5
	16

PHARMACIST

COURSE DESCRIPTIONS

373 Pharmaceutics I. I;

The application of plysical-chemical principles to pharmaceutical systems. Prerequisite: 1 year physics, 1 sem calculus or cons instr.
Credit: 4

401 History of Pharmacy I;
Pharmaceutical field, from antiquity to modern medical care; emphasis upon professional structuring in principal countries of the West. Prerequisite: Junior
Credit: 3

324 Pharmaceutical Analysis I;

Principles and practice of modern methods for the analysis of drugs and dosage forms, including titrimetric methods, instrumental analysis separation techniques, and functional group analysis. Prerequisite: Chem. 343, 345.
Credit: 4-5

332 Pharmaceutical Chemistry II;

The chemistry of metabolic precesses and prducts of living matter with attention to their pharmaceutical and medicinal aspects. Prerequisite: Pharm. Chem. 324.
Credit: 4

374 Pharmaceutics II II;

Solutions as dosage forms including physico-chemical background, biological properties, and technology. Prerequisite: Pharm. 373
Credit: 4

303 General Microbiology II; (B-I)

For advanced undergrads and grads. Prerequisite: Jr st, Chem. 341 and cons instr.
Credit: 4

402 Survey of Disease States II;

Primarily for the Schools of Pharmacy and Nursing to provide a background in the understanding of the mechanisms and pathology of disease states. Prerequisites: Required for students in pharmacy and in nursing; for others, cons instr.
Credit: 4

235 Physiology. I, II, SS;

Lectures, recitations, demonstrations, and labs. Prerequisite: Sem Chem. or cons. instr. Biology and physics recommended.
Credit: 5

476 Pharmaceutics IV. II;

Heterogeneous dosage forms including physicochemical background, biological properties, and technology. Prerequisite: Pharm. 475.

Credit: 3

451 Pharmacology II. II;

Pharmacology of cardiac glycosides, hormones, diuretics, antihypertensives, and gastrointestinal pharmacology.Prerequisite: Pharmacol 460, PH2 st. or cons instr.

Credit: 4

432 Medicinal Chemistry II. II;

The chemistry of organic and inorganic medicinal products. Prerequisite: Pharm. Chem. 431

Credit: 3

441 Pharmacy Management II;

General management priciples applied to a pharmacy practice including a survey of financial management, personnel management and professional relations. Prerequisite: Econ. 101 or 103.

Credit: 3

610 Social Aspects of American Pharmacy II;

Literature in pharmaceutical sociology and social psychology. Emphasis on socialogical aspects of drug prescribing, drug dispensing, and the consumer drug use. Prerequisite: Sr st or cons instr.

Credit: 2

565 Pharmaceutics V I;

A study of the compounding of prescriptions with emphasis on elementary principles of product design. Prerequisite: Pharm. 476.

Credit: 3

652 Therapeutics I. I;

Discussion and evaluation of the treatment of various disease conditions. Prerequisite: PH 3 st or cons instr.

Credit: 3

662 Clinical Pharmacy Clerkship I. I;

Practical experience in the hospital environment with emphasis on patient student interaction, medication records, effects of medication on the patient, and observation of various servicesin the hospital. Prerequisite: Pharmacol. 460, 461; Phathol 402.

Credit: 2

670 Therapeutic Drug Interactions. I;

Discussion of clinically significant interactions, relevance and proper perspective on beneficial interactions. Prerequisite: Pharm. 476, Pharmacol. 460, 461.

Credit: 2

566 Pharmaceutics VI. II;

Patient medication profiles are utilized and pharmacist-patient communication skills are developed as trade product prescriptions are dispensed in a simulated practice setting; prescription compounding is reviewed, with an introduction to intravenous admixtures. Prerequisite: Pharm 565

Credit: 2

653 Therapeutics II. II;

Discussion and evaluation of the treatment of various disease conditions. Prerequisite: Phar. 652.

Credit: 2

663 Clinical Pharmacy Clerkship II. II;

Advanced training in drug utilization in institutions, together with exposure to disease states and drugs commonly seen in community outpatient pharmacy practice. Prerequisite: Pharm. 652. 662.

Credit: 1

552 Environmental Toxicology II;

Public health and safety problems involved in the use and sale of drugs, chemicals, and preparations classified as poisonous, hazardous, or both. Prerequisite: 1 sem org chem, 1 yr biol sci, or cons instr.

Credit: 3

511 Pharmacy Jurisprudence and Ethics II;

Pharmacy jurisprudence with special emphasis on Wisconsin and federal laws and regulations. Prerequisite: PH 3 st.

Credit: 3

The following is a list of High School courses that are recommended to prepare fully for the PHARMACIST program at any college or university in Wisconsin. See Appendix I for course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Advanced Algebra with Trigonometry

Advanced Math

Chemistry

Biology

Advanced Chemistry

Physics

Economics

PHARMACY TECHNICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year	Credit
801-353 Communications Basic	2
509-320 Medical Terminology	2
106-366 Health Occupations Typing	2
804-311 Math Computations	1
509-300 Orientation to Health Services	.5
	7.5
809-345 Psychology for Health Occupations	2
509-301 Basic Health Lab	.5
536-302 PVR for Pharmacies	.5
536-320 Drug Terminology Generic Terms	1
809-302 Job Placement Techniques	.5
536-310 Applied Pharmaceutical Math	.5
536-322 Routes of Drug Admin	1
536-312 Basic Pharmacy Operations	1
	7
Second Year	
536-324 Unit Dose	2
536-326 Parenteral Admixture Services	3
536-314 Drug Regulations	.5
536-316 Inventory Control	1
536-330 Prepackaging and Labeling	2
536-328 Pharmacy Solutions and Compounding Techniques	3
	11.5
536-340 Pharmacy Clinical Experience	4

PHARMACY TECHNICIAN

COURSE DESCRIPTION

801-353 Communications - Basic

The practical aspects of writing, speaking, and listening as applied to health occupations are stressed in this course.

Credit: 2

509-320 Medical Terminology

This course has been designed to give the medical secretary a panoramic view of the whole range of diseases and injuries, and a closer inspection through the study of the complex medical language that doctors use to name these ailments, their symptoms and causes. Medical terminology describes the human body; its functions, its normal state, the diseases and injuries which affect it, and the various means, agents, and procedures employed to prevent, minimize or cure the effects of disease and injury. Emphasis in this course is placed on the precise meaning of line roots and combining forms, the exact spelling and the correct pronunciation of each word.

Credit: 2

106-366 Health Occupations Typing

Health Occupations Typing is designed to provide the health assistance with a complete basic touch typewriting course including mastery of the keyboard, efficient machine control, correct typing techniques, and development of speed and accuracy.

Typing problems are chosen to cover a varied amount of material including memorandums, personal notes, postcards, vertical and horizontal centering, tabulation, themes, proofreader's marks, word division, assembling carbons, outlines, alignment, manuscripts and footnotes, business letters envelopes.

The minimun typing speed required for this course is 40 wpm for 5 minutes with 5 or less errors. The importance of production performance is emphasized.

Prerequisites: None. (No typing experience is required to enroll in Health Occupations Typing. However, some students with no previus typing experience may find it difficult to complete the course in the nine-week period depending upon the number of hours they can devote to his class.)

Credit: 2

804-311 Math Computations

Math Computations includes addition, subtraction, multiplication and division of whole numbers, fractions, and decimals including the conversion of fractions to decimals and decimals to fractions.

Credit: 1

509-300 Orientation to Health Services

This course will acquaint the student with health organizations, both national local professional, and governmental. The student will obtain an orientation to medical assisting, dental assisting, optometric assisting, and ward clerk positions.

Credit: .50

809-345 Psychology for Health Occupations

This course is designed for students in the health occupation core curriculum. It will provide the student with an opportunity to apply basic principles of psychology to every-day life. Inclass activities include small group and full class discusions, guest speakers, visual aids, debates, and case studies.

Credit: 2

509-301 Basic Health Lab

The course addresses itself to the concepts of aseptic and sterile techniques that are an integral part of the treatment and care of patients calling at the practitioner's office. Inherent in these techniques are the proper utilization of auto-claves, instrument sterilization through the boiling techniques and cold disinfection techniques.

In addition to the techniques mentioned above, the student will learn procedures for the care and maintenance of the practitioner's examination areas and the office areas.

The course also includes a study of the vital signs of the patient, oral temperature, pulse, respiration and blood pressure. Practice of these procedures will be carried out with proper recording of the results.

The students will also take basic Red Cross First Aid lessons with completion of this portion of the course leading to a Red Cross Certificate. Nine hours of CPR training will be required also.

Credit: 2

536-302 Personal Vocational Relationships for Pharmacies

In this course, the student will become acquainted with pharmacy organization on the national, state, and local levels. The student will be oriented to the technician job description, the relationships of technicians to pharmacists and to other staff members, and to legal and ethical responsibilities.

Credit: .5

536-320 Drug Terminology

The student will become acquainted with the common terms and symbols used in the daily practice of pharmacy. In addition, the student will acquire a working knowledge of frequently used English and Latin abbreviations. Some brand and generic drug terminology will also be introduced.

Credit: 1

809-302 Job Placement Techniques

This course provides the student with expertise in writing application letters, in preparing resumes, filling out formal applications, and with job interview performance.

Credit: .50

536-310 Applied Pharmaceutical Math

This course will cover pharmaceutical calculations dealing with weights and measures, pharmaceutical calculations, percentages, ratios, and fractions.

The student will become knowledgeable in the apothecary, avoirdupois, and metric systems of measurements.

The use of Roman numerals, the proper determination of decimals, and the calculations of specific gravity and isotonicity are also included in this course. Prerequisite: Math Computations.

Credit: 5

536-322 Routes of Drug Administration

This course presents lesson modules on:

A. Local administration (eye drops, lotions, etc.)
B. Systematic administration (oral, parenteral, etc.)
C. Dosage forms (tablets, solutions, ointments, etc.)
D. Adjunct devices for drug administration (syrignes, nebulizers, etc.)

Credit: 1

536-312 Basic Pharmacy Operations

This course is concerned with the tasks of the pharmacy aide in respect to front office practices in pharmacy operations which include:

1. purchase requisitioning and order preparations
2. charges and billing
3. filing procedures
4. copying and xeroxing operations
5. patient profile preparations

Credit: 1

536-324 Unit Dose

This course will include the following:

A. Measurements of quantity, volumes, and numbers
B. Use, assembly, and maintenance of equipment and apparatus
C. Control and record-keeping procedures
D. Utilization of physician order sheets and patient medication profiles
E. Setting up unit doses
F. Double checking for accuracy
G. Delivery and exchange of medications

Credit: 2

536-326 Parenteral Admixture Services

A brief explanation of parenteral administration of drugs precedes the introduction of aseptic compounding techniques in this course. The student will become skilled in the use of equipment and systems used in parenteral admixture preparation and knowledgeable in the equipment use in parenteral administration. The student will become acquainted with the physical and chemical incompatibilities, essential record keeping, and quality of control affecting parenteral admixtures.

Credit: 3

536-314 Drug Regulations

This course is concerned with the legal considerations in pharmacy operations which include:

A. Pharmacy regulations
B. Constraints and security of controlled substances
C. Accountability

Credit: .5

536-316 Inventory Control

This course will present essential knowledge on the storage and inventory control of drugs. It includes basic information on lot numbers; expiration dates; and effects of temperature, light, and moisture on drugs. The management of drug flow into and out of pharmacy stores as well as the principles of purchasing are also presented. Prerequisite: Drug Regulations Course.

Credit: 1

536-330 Prepackaging and Labeling Techniques

This course will involve the:

A. Proper labeling of drug containers and packaging including the information on types of containers best utilized.
B. The use, assembly, and maintenance of labeling and prepackaging equipment.
C. Control and record keeping procedures (including worksheets and charge order sheets.)

Credit: 2

536-328 Pharmacy Solutions and Compounding Techniques

This course will deal with bulk compounding techniques and include:

A. Proper measurements.
B. Use of formula master sheets, batch records.
C. Quarantine, product testing and monitoring.
D. Safety considerations.
E. Use and maintenance of compounding equipment.
F. Cleaning and housekeeping.

Credit: 3

536-340 Pharmacy Clinical Experience

This four-week course will involve an assignment of the student to a cooperating hospital or clinical pharmacy. The student will function as a pharmacist assistant applying the the skills and knowledge obtained in the program educational process.

Travel to and from the clinical affiliate assignment will be the responsibility of the student.

Credit: 4

The following is a list of high school course that are recommended to prepare fully for the PHARMACY TECHNICIAN program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Typewriting (I)

Biology

Chemistry

Advanced Algebra

Psychology

Office Practice

PODIATRY

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PODIATRIST

The state of Wisconsin has no college or university that offers a degree in podiatry. The following pre-podiatry outline was obtained from a college or university outside the state of Wisconsin that does offer such a program. It is the responsibility of each student to investigate the policy of the college of their choice for specific course requirements. It is imperative to check also the specific policies regarding academic requirements of admission.

COURSE OUTLINE

PRE-PODIATRY

The minimum education required for entry into a college of podiatric medicine is two years of undergraduate college; however, most students currently being accepted have the bachelor's degree. Admission is based primarily on undergraduate records and the results of entrance examinations. In general, the undergraduate program should include courses in biology or zoology, English, chemistry, physics, and the social sciences.

The four-year podiatry school program consists of two years of classroom and laboratory instruction followed by two years of clinical experience in college and community clinics, hospitals, and the office of practicing Podiatrists. Upon successful completing of the four-year program, the degree of Doctor of Podiatric Medicine (D.P.M.) is awarded.

The following is a list of high school courses that are recommended to prepare fully for the PRE-PODIATRY program at any college or university outside the state of Wisconsin. See Appendix I for the course descriptions.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

Physics

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Sociology

Economics

Advanced Algebra with Trigonometry

Advanced Math

Two years of foreign language

SCIENCE and ENGINEERING

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BIOMEDICAL ENGINEER

The following course outline is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Freshman First Semester

	Credits
MaSt 080 Calculus I	4
Chem 001 General Chemistry I	4
Engl 001 Modes of Discourse I	3
Biol 001 General Biology	3
GeEn 002 Introduction to Digital Computers	2
	16

Second Semester

MaSt 081 Calculus II	4
Chem 002 General Chemistry II	4
Engl 002 Modes of Discourse II	3
Biol 002 General Biology	3
Theo/Phil Elective	3
	17

Sophomore First Semester

MaSt 082 Calculus III	4
Phys 003 General Physics	4
ElEn 011 Electrical Circuits I	4
EnMe 122 Statics and Dynamics	4
GeEn 003 Soph Orientation	0
	16

Second Semester

Chem 023 Organic Chemistry	4
Phys 004 General Physics	4
ElEn 012 Electic Circuits II	4
ElEn 010 Electronic Devices & Applic.	3
Theo/Phil Elective	3
	18

Junior First Semester

		Credits
Biol 090	Principles of Biological Investigation	3
ElEn 111	Physical Electroncis	4
ElEn 113	Linear Systems Analysis	4
Chem 124	Organic Chemistry	4
	Humanity Elective	3
		18

Second Semester

Biol 100	Molecular Basis of Biology	3
ElEn 112	Electronic Circuits	4
ElEn 141	Exp Problem Solving I	2
MaSt 083	Linear Algebra & Diff.Equations	4
	Theo/Phil Elective	3
		16

Senior First Semester

BiEn 185	185 Computer Applications in Biomed Eng	3
BiEn 188	Biomed Eng Design Laboratory	3
	Biomedical Elective	3
McEn 105	Intro to Energy Eng	3
ElEn 142	Exp Prob Solving II	2
	Humanity Elective	3
		17

Second Semester

BiEn 186	Physiological Transport Phenomena	3
BiEn 189	Biomed Eng Design Laboratory	3
	Biomedical Elective	3
BiEn 187	Biomed Instrumentation Design	3
	Humanity Elective	3
		15

BIOMEDICAL ENGINEER

COURSE DESCRIPTIONS

080 Calculus I

Functions of one variable, limits and continuity. The derivative and the definite integral with applications. Prereq: MaSt 041 or three or four years of college preparatory mathematics listed in description of MaSt 041.

Credits: 4

001 General Chemistry

Introductory college Chemistry. Fundamental principles of Chemistry. Application of fundamental principles to the Chemistry of certain elements. The following mathematical concepts are used in Chem 001 and 002; scientific notation, logarithms, the quardratic equation and proportionality.

Credits: 4

001 Modes of Discourse I

An introduction to the basic principles of rhetoric and composition. Investigation of and practice in the uses of written language in exposition, argument, and persuasion.

Credits: 3

001 General Biology I

Biology as a science. Elementary physics and chemistry for biologist. Biochemistry. Cellular organization and reproduction. Regulation and control at cellular and organismal levels. Immune mechanisms. Neuroanatomy and neurophysiology.

Credits: 3

GeEn 002 Introduction to Digital Computers

Basic concepts of computer programming in the FORTRAN language. Assigned problems to demonstrate programming techniques. Use of Sigma 9 computer, via remote terminals.

Credits: 2

081 Calculus II

The transcendental functions. Techniques of intregration including numerical methods. Infinite sequences and series. Taylor Series. Prerequisite: MaSt 080.

Credits: 4

002 General Chemistry

Continuation of Chem 001. Chemistry of metals and non-metals. Qualitative analysis included as part of laboratory work. Prerequitie: Cem 001

Credits: 4

002 Modes of Discourse II

Continuation of Engl 001, with an introduction to the uses of language in poetry, fiction and drama. Prequisite: Engl 001.

Credits: 3

002 General Biology II

Continuation of Biology I. Reproduction in protists, plants, animals and man. Classical genetics. Molecular genetics. Animal development. Growth and development in plants. Animal behavior. Populations, communities and evolution. The environment. Biology and the future of man. Prerequisite: Biol 001.

Credits: 3

082 Calculus III

Three-dimensional analytic geometry including parametric equations, vectors and vector functions. The differential and integral calculus of functions of several variables. Prerequisite: MaSt081.

Credits: 4

003 General Physics

General physics for students majoring in physics, chemistry, mathematics and engineering. Newton's laws, conservation laws, rotational motion, oscillations, fluid mechanics, heat, thermodynamics, wave motion and sound. Coreq: MaSt 080. Fee

Credits: 4

001 Electric Circuits I

Kirchhoff;s laws. Mesh, nodal, general nodal and loop analysis of resistive circuits. Linearity and superposition. Source transformations. Thevenin's and Norton's theorems. Natural and forced response of transient circuits of first and second order. Sinusoidal steady-state response.

Credits: 4

022 Statics & Dynamics

Fundamentals of forces, force systems and their application to static and dynamic bodies and systems of particles emphasizing vector methods in two and three dimensions. Equations of equilibrium, friction, applications of Newton's laws, energy and momentum methods and introduction to vibrations. Prerequisite: MaSt 082.

Credits: 4

003 Sophomore Orientation

A one-hour a week series of lectures, discussions, etc. to assist beginning Sophomores to define more clearly their professional goals by better acquainting them with the many options available as they progress through their remaining years of formal education. Topics include: The cooperative (co-op) plan, graduate school, departmental option areas and the concept of engineering planning of an individual, goal-oriented program. All Sophomores required to attend.

No Credit

023 Organic Chemistry

Modern theories of bonding, sterochemistry, synthesis and reaction mechanism. The chemistry of aliphatic and anomatic hydrocarbons and then functional group derivatives. Laboratory: basic organic manipulations such as distillation, recrystallization, etc. including simple synthesis. Prerequisite: Chem 002 or 004.

Credits: 4

004 General Physics

Continuation of Phys 003. Coulomb's law, Gauss's law, electric potential, DC circuits, magnetism, Ampere's law, Faraday's law, electromagnetic waves, geometrical and wave optics. Bohr theory, waves and particles, current topics in physics. Prerequisite: Phys 003

Credits: 4

012 Electric Circuits II

Sinusoidal steady-state response. Requency response. Average power and rms values. Complex power. Polyphase circuits. Complex frequency and frequency response. Magnetically coupled circuits. Fourier analysis. Complete response to periodic forcing functions. Laplace transform theory and application to circuit analysis.

Credits: 4

010 Electronic Devices and Applications

Basic electron device theory, analysis application and circuit design. Topics include forces on charge carriers, motion of carriers in media, thermionic devices and circuits, P-N junctions, characteristics, and circuits, zener avalanche, light emitting, tunnel,photo and laser diodes and circuits, circuit applications. Prerequisites: MeEn 060.

Credits: 3

090 Principles of Biological Investigation

Inroduction to planning and analysis of experiemental investigations, and to selected instrumentation and techniques including microscopy, aseptic procedures, spectrophotometry, computer analysis of data and chromatography. Prerequisite: Biol 002(may be taken concurrently).

Credits: 3

111 Physical Electronics - Circuits and Applications

Active electron devices including bipolar, unipolar, and integrated systems - topics include device theory, design and application; frequency dependent models, circuit analysis, power circuits, integrated circuits, switching circuits, logic gates and feedback circuits. Prerequisites: ElEn010

Credits: 4

113 Linear Systems Analysis

Block diagrams and signal flow graph, transfer function and second order system. Feedback control and stability. Root locus and nyquist plot. State variables and state transition equations. Difference equation and sampling Z-transform. Digital filter. Prerequisite: ElEn012 or ElEn 107.

Credits: 4

024 Organic Chemistry

Continuation of Chem 023. Extension of the chemistry of the remaining mono or poly-functional compounds. Bonding, sterochemistry, mechanisms, synthesis, applied spectroscopy, heterocycles and natural products. Laboratory: synthesis, instrumental application, organic qualitative analysis.

Credits: 4

100 The Molecular Basis of Biology

Introduction to the properties and principal interactions of low molecular weight metabolities and macromolecules in living systems. Prerequisities: Biol 002 and Chem 024(latter may be taken concurrently).

Credits: 3

112 Integrated Electronic Circuits

Detailed analysis of both linear and digital integrated circuits. Design of electronic systems based on integrated circuit packages. Topics include: operational amplifer applications, communication systems, instrumentation and control systems, and large scale integration devices. Students required to complete a design project. Prerequisite: ElEn111.

Credits: 4

141 Experimental Problem-Solving I

The philosophy and methodology of experimental problem-solving. Statistical error theory and its application to data and instrument analysis. Emphasis on use of the electronic digital computer as a design tool. Coreq: ElEn 111. Prerequisite: ElEn 012.

Credits: 2

083 Linear Algebra and Differential Equations

Matrices and determinants with applications. Methods of solving linear differential equations and systems. Prerequisite: MaSt 082

Credits: 4

185 Computer Applications in Biomedical Engineering

Introduction to computer applications in biomedical engineering. Specialized algorithms for processing biomedical data. Emphasis on data acquisition and reduction using mini-computers in the clinical and biomedical laboratory environments.

Credits: 3

188 Biomedical Engineering Design Laboratory I

The use of medical instruments in the hospital environment. Understanding the principles of operation, safe operating procedures and methods of instrument selection. Actual medical instruments used under approximate clinical conditions.

Credits: 3

105 Introduction to Energy Engineering

Survey of various energy systems, devices and processes. Elements of thermodynamics; basic principles employed for analysis of energy processes, devices and systems, and for the design of systems consisting of various devices working together; properties of materials undergoing energy processes. Prerequisite: MaSt 082, Chem 001, Phys 003.

Credits: 3

142 Experimental Problem - Solving II

Continuation of ElEn 141. Coreq: ElEn 112. Prerequisite: ElEn 141.

Credits: 2

186 Physiological Transport Phenomena

Principles and mechanisms of momentum, energy and mass transport phenomena. Thermodynamic and transport properties of physiological substances. Survey of applications of transport phenomena in physiological systems, e.g., cardiovascular, pulmonary and renal. Selected analyses of prostheses, e.g., heart, lung, and kidney.

Credits: 3

189 Biomedical Engineering Design Laboratory II

The use of instruments in the research environment. Design of specialized systems using standard laboratory instruments. A comparison of specialized instruments and general purpose instruments. Report-writing. Students required to submit realistic reports on experiments and design projects.

Credits: 3

187 Biomedical Instrumentation Design

Problems in instrumentation relating to physiological measurments in the laboratory and clinic. Electronic devices for stimulus as well as measurement of physiological quantities. Design of actual instruments. Features include mechanical design, accessory design and safety requirements.

Credits: 3

The following is a list of high school courses that are recommended to prepare fully for the BIOMEDICAL ENGINEER program at any college or university in Wisconsin. See Appendix I for course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Biology

Chemistry

Physics

Advanced Chemistry

Advanced Algebra with Trigonometry

Advanced Math

Computer Lit

BIO-ENVIRONMENTAL ENGINEERING TECHNOLOGIST

The following course oultine is representative of an educational program at any college or university in Wisconsin. Students are advised to consult the bulletins of the college of their choice for specific outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements for admission to the separate programs at each college or university. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

This senior college program is designed especially for students who have received or are about to receive their associate degrees from two-year programs in science, applied science, engineering technology, environmental science, or medical technology.

Transfer students meeting prerequisite requirements can enter the Bio-Environmental Engineering Technology program at the Junior year level, and will be awarded the Baccalaureate degree upon successful completion of the course.

Each student entering the program chooses his core courses from either the Electrical or Mechanical Engineering Technology curriculums. To the core course unit are added three required subjects: Physiology, Organic and Biochemistry, and Biomechanics. The student's academic program is then rounded out with a selection of elective subjects in his major area of interest.

Since Bio-Environmental Engineering Technology deals with the design, maintenance and manufacturing of components and systems that promote the health and safety of man, this extensive field may be divided into the following major areas of interest.

Biomedical Engineering Technology - the application of technology, chemistry, physics, and physiology to the design and maintenance of instruments and systems employed in the health-care industry.

Environmental Engineering Technology - the application of technology, chemistry, physics, and physiology to the design of instruments and systems used to monitor and control the environment so that it will be healthful and safe for man.

Occupational Health and Safety Engineering Technology - the application of technology, chemistry, and biomechanics to the design of components and systems that are of immediate practical usefulness to occupational health and safety, comsumer safety, and protection against hazards incidental to activities of daily living.

JUNIOR YEAR Engineering Technology

ET-302 Electric Curcuits I
MT-300 Statics & Strength of Materials
ET-303 Electric Circuits II
MT-3-3 Dynamics
ET-310 Fundamentals of Design
ET-320 Electromagnetic Fields

Mathematics and Science

MA-325 Calculus III
CH-301 Chemistry I for Engineering Technologists
BT-470 Physiology
MA-326 Engineering Mathematics
CH-302 Chemistry II for Engineering Technologists
BT-435 Biomechanics
PT-360 Physics & Fundamentals of Semiconductor Devices

General Studies

IC-322 Economics II
IM-441 Supervision
OR-401 Professional Concepts

SENIOR YEAR Engineering Technology

MT-318 Thermodynamics & Heat Transfer
BT-400 Bio-Environmental Design Project
MT-330 Fluid Mechanics

Mathematics and Science

BT-440 Organic & Biochemistry

General Studies

HS-461 Industrial Psychology
OR-402 Professional Guidance
IC-423 Engineering Economy
IC-431 Law

BT Electives * Electives*

* There are 29 credits of elective subjects in the Bio-Environmental Engineering Technology Core Courses curriculum. Of these, students must choose 9 credits from the field of Humanities and Social Sciences, and 20 credits (BT Electives) from the Bio-Environmental area. Of the 20 credits, 12 must be in one of the following areas: Biomedical, Environmental, or Occupational Health and Safety. The remaining 8 credits may be in the same area or taken from the other 2 areas.

BIO-ENVIRONMENTAL ENGINEERING TECHNOLOGIST

COURSE DESCRIPTIONS

ET-302 Electric Circuits I

In this subject, the student's background in the analysis of electric circuits is extended to include the digital computer as a tool in the analysis of resistive circuits by mesh and nodal analysis. The solution of first order and second order systems by classical and numerical methods also is included. The course ends with an exposition of sinusoidal steady-state analysis using computer techniques. (Prerequisite: ET-101 or equivalent; Corequisite; MA-325)

MT-300 Statics & Strength of Materials

The statics portion includes the study of resultants and conditions of equilibrium of force systems. This includes trusses, frames, and friction. The strength of materials portion includes stress-strain relationships, torsion, bending and shear stresses. (Prerequisites: GT-100 and MT-114; Corequisite: MA-325)

ET-303 Electric Circuits II

This subject presents additional advanced topics in the field of circuit analysis and acquaints the student with methods used to obtain the general solution of an electrical network excited with a variety of input signals and initial conditions. Both classical and operational techniques are used. Topics included are distributed parameter networks, introductory transmission line theory, the response of simple R-C, R-L, and R-L-C circuits to miscellaneous applied signals, and repeating and discontinuous functions. (Prerequisite: ET-302; Corequisite: MA-326)

MT-303 Dynamics

This course deals with the motions of particles and rigid bodies and the forces causing them. Topics include rectilinear curvilinear motion, rotation, and plane motion. Principles include Newton's law, impulse and momentum, work, and energy. (Prerequisite: MT-301 or AT-220 and MA-325)

ET-310 Fundamentals of Design

In this sjbject, the student is introduced to the fundamentals of design. The student is taught to apply fundamental concepts to design problems taken from the field of electrical technology. Particular emphasis is placed on acquainting the student with state-of-the-art electronic components and their application in fundamental circuits. (Prerequisite: ET-303 and HS-434)

ET-320 Electromagnetic Fields

Key vector analysis topics such as Stokes' Theorem and the Divergence Theorem are applied to solving electrostatic and magnetostatic fields problems and in investigating the nature of these fields. The equations of Laplace and Poisson are solved in cartesian coordinates. Other topics covered are polarization and magnetization concepts, thermal and fluid fields, graphical and numerical solutions to fields problems. (Prerequisite: MA-326)

MA-325 Calculus III

This subject is a continuation of MA-225. The topics covered include special integration techniques, partial differencation, power series, and applications. Prerequisite: MA-225

CH-301 Chemistry I for Engineering Technologists

This subject is for students enrolled in BS in Engineering Technology curricula. Topics presented include a review of basic chemical calculations and concepts, structure of the atom, chemical bonding, introduction to organic chemistry, the kinetic molecular theory as applied to gases, liquids, solids and solutions. Applications of the principles presented are related to energy resources including solid, liquid and gaseous fuels atmospheric pollution and industrial processes. Laboratory experiments are integrated with lecture topics. (Prerequisites: CH-001 or equivalent and MA-010 or equivalent; Corequisite: MA-011)

BT-470 Physiology

This subject introduces the student to human physiological processes.

MA-326 Engineering Mathematics

The topics considered in this subject include methods of higher mathematics beyond elementary calculus of use to engineers and the application of these methods to practical problems. Stress is placed on how to use mathematics to solve problems rather than on rigor of mathematical proof. Among the topics covered are first and higher order linear differential equations and applications, the Laplace transform, and matrices. (Prerequisite: 325)

CH-302 Chemistry II for Engineering Technologists

This is a continuation of CH-301. Topics discussed include chemical cells, corrosion, plastics, eleastomers, protective coatings, domestic and industrial uses of water, sewage disposal, and explosives. Laboratory experiments are integrated with lecture topics. (Prerequisite: CH-301 or equivalent)

BT-435 Biomechanics

Biomechanics is an interdisciplinary subject which encompasses the fields of physiology, medicine, surgery, pathology, prosthesis, patient care, dentistry, athletics and even social and environmental studies. The objective of this subject is to investigate (1) the ideas of force, moment, stress, strain, and properties of materials insofar as they relate to the functions and properties of various parts of the body; (2) the ideas of work and energy, particularly as they apply to muscular effort; (3) situations in which bodily injury may occur; and (4) to investigate how bodies move. (Prerequisite: Term 8 standing)

PT-360 Physics & Fundamentals of Semiconductor Devices

This subject reviews the concepts of modern physics that are important to an understanding of semiconductor devices. The band theory of metals and semiconductors is developed and applied to the p-n junction. Applications with classromm demonstrations are extended to include transistors, unijunctions, silicon controlled rectifiers, Hall effect devices, tunnel diodes and field effect transistors. Laboratory experiments and demonstrations are performed to support the classroom lectures. (Prerequisite: PT-220)

IC-322 Economics II

This subject outlines and analyzes the application of the principles of economics to our modern business and government situations. Special studies involve agriculture, wages and labor, private and national income, secular changes and cyclical fluctuations, money and credit, taxation, and the management of the national debt. (Prerequisite: IC-221)

IM-441 Supervison

The supervisor's major responsibilities and tasks in handling his position in any type of a business enterprise are examined in depth. The values of human relations, economic knowledge and communication skills are stressed. (Prerequisite: IC-322)

OR-401 Professional Concepts

This series of lectures, designed especially for the engineering or engineering technology student entering his Senior year, presents various aspects of professional development. The transition from student to graduate is emphasized, Planning for continued professional and technical growth is emphasized. Included in the discussions are the canons of engineering ethics, legal registration, professional and technical society affiliations, and obligations of the professional man. (Prerequisite: Senior standing)

MT-318 Thermodynamics & Heat Transfer

This is an introduction to engineering thermodynamic fundamentals for the electrical or manufacturing engineering technology student. Topics include work, temperature and heat, properties of systems, pure substances, and the laws of thermodynamics. The latter part of the course is devoted to heat transfer concepts and applications to heat sink design and device cooling considerations. (Prerequisite or Corequisite: MA-325)

BT-400 Bio-Environmental Design Project

In this subject, the student is required to complete a design project in his major field of interest. An oral report, a written report, and a working model normally are required. Prerequisite: Senior standing and consent of Program Head.

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MT-330 Fluid Mechanics

This subject covers incompressible fluids and thier application. Specific topics deal with fluid statics and dynamics, viscosity, turbulence and fluid resistance. (Prerequisite: MT-311 or MT-318)

BT-440 Organic & Biochemistry

This subject is designed to provide the student with the principles of organic and biochemistry. Subject matter includes a study of the properties, preparations, and interrelationships of important classes of organic compounds, as well as a study of carbohydrates, proteins and liquids, and their role in cell metabolism. (Prerequisite: CH-301 or equivalent)

HS-461 Industrial Psychology

In this subject, a psychological grondwork is presented featuring the Adjustment Concept. An intense study of psychological terms is carried on in presenting the basic text material. Allied case studies are introduced and discussed. The terminology and language of the field are constantly directed toward industrial application. Industrial situations involving the psychological approach are cited and diagnosed in relation to causes and possible solutions. (Prerequisite: HS-161

OR-402 Professional Guidance

In this Senior lecture, additional aspects of the transition from student to graduate are considered. The development of a career plan is explored from employment practices and industrial recruitment to the establishment of a personal plan for continued professional and technical responsibility. (Prerequisite: OR-401)

IC-423 Engineering Economy

This subject is intended to provide the fundamental techniques for quantifying engineering and business decisions. It deals with cost, value, and worth concepts and emphasizes the application of funds invested in capital assets and facilities and the return on such investments. Such topics as the time value of money, interest, depreciation, taxes, dividends, and retained earnings are studied and then employed in basic techniques for analyzing and evaluating choices among alternative projects. Investments and products.

IC-431 Law

This subject is designed to acquaint the student with the practical legal principals of engineering law. Particular attention is paid to problems arising under the following topical headings: general contract principles, agency, sales, negotiable instruments, real property, partnerships and corporations. Practical legal problems of interest to technicians and engineers are studied.

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The following is a list of high school courses that are recommended to prepare fully for the BIO-ENVIRONMENTAL ENGINEERING TECHNOLOGIST program at any college or university in Wisconsin. See Appendix I for the course descriptions.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

Physics

Environmental Science

Advanced Algebra with Trigonometry

Advanced Math

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Economics

BIOMEDICAL ELECTRONICS TECHNICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester	Credit
Biomedical Electronics Orientation 100	1
D.C. and A.C. Circuits 109	4
Fabrication Techniques 186	2
Communication Skills I 151	3
Technical Mathematics I 151	4
Physical Education 101	1
Psychology of Human Relations 151	3
	18

First Year Second Semester	
Electronics Principles and Circuits I 122	4
NFPA Code and Electrical Safety 136	2
Communication Skills 2 152	3
Technical Mathematics 2 152	4
Physics for the Health Sciences 158	4
	17

Second Year First Semester	
Electronics Principles and Circuits 2 123	4
Biomedical Transducers 139	4
Biomedical Instrumentation I 140	4
Anatomy and Physiology for Biomedical Electronics Technicians 157	3
American Institutions 153	3
	18

Second Year Second Semester	
Electronics Principles and Circuits 3 124	3
Digital Control Systems 129	3
Biomedical Electronics Technician Intership 137	3
Biomedical Instrumentation 2 141	4
The American Economy 110	3
	16

BIOMEDICAL ELECTRONICS TECHNICIAN

COURSE DESCRIPTIONS

100 Biomedical Electronics Orientation

The basic concepts that the student must relate to in biomedical work. Includes an understanding of measurement and calibration techniques for the hospital and the manufacturer. The psychological needs of the patient are stressed for the normal and critical patient areas. Successful completion satisfies the Orientation requirements.

Credit: 1

109 D.C. and A.C. Circuits

This is the beginning electronics course required of all students in the Industrial Electronics Communications Computer Science, Industrial Instrumentation, and Biomedical Electronics programs. Topics include: Ohm's Law for D.C. series and parallel circuits; indictance and capacitance; transformers, reactance, and impedance in series and parallel circuits; and resonance and time delay. Laboratory work provides verification of the theory presented in lecture. Prerequisite: Math 151 or concurrent registration in Math 151.

Credit: 4

186 Fabrication Techniques

The proper selection and use of the basic tools and techniqes required in the fabrication of electrical equipment is covered by lecture and laboratory work. The student develops manual skills by practice on selected electronic projects. Skills in soldering, shop safety, and the use of power tools are covered. The student is given practice and training in the assembly of circuits using miniaturized electronic devices.

Credit: 2

151 Communication Skills I

Designed to improve the student's speaking, reading, writing, and listening skills and to help him grown in language power. The course material, covering the four basic skills, has been correlated so that the methods used in these four areas are complementary parts of the whole communication process. Assignments will be selected from literature and the mass media.

Credit: 3

151 Technical Mathematics I

The student masters the basic mathematics topics needed by technicians. Technical Mathematics I includes these topics: signed numbers, operations with fractions, non-fractional equations, graphing, formula rearrangement, systems of two equations, formula derivation, number system, powers of ten, estimation, slide rule calculations, ratio and proportion, percent, and common logarithms. Prerequisite: One year of high school algebra.

Credit: 4

101 Physical Education

This coeducational course includes active participation in various physical activities and a survey of off-the-job living time. It is designed to interest the student in physical activities, sports, and recreation for present and future participation. The ability of non-swimmers or poor swimmers will be improved. The course is tailored to the student's ability and encourages the solution of individual health problems. Students furnish their own personal equipments.

Credit: 1

151 Psychology of Human Relations

A study of psychological principles that will be of assistance in the understanding of interpersonal relations. Motivation, emotion, perception, and learning are among topics considered with reference to effective individual and group behavior.

Credit: 3

122 Electronics Principles and Circuits I

A study of basic diode circuits serves as an introduction to electron devices. Considerable emphasis is placed on learning the techniques of circuit analysis through such topics as common symbols and conventons, load lines, loop, mesh, and node equations; ideal voltage and current sources; Tevenin's and Norton's Theorems' and other basic circuit-sovling techniques. The course concludes with an introduction to transistors. Prerequisite: Elec T 109 and Math 152, or concurrent registration in Elec T 109 and Math 152.

Credit: 4

136 NFPA Codes and Electrical Safety

The student is provided with information on, and interpretation of the current National Fire Protection Agency codes to increase patient safety. Concepts of electrical safety in the hospital environment are stressed as are possible legal complications regarding biomedical electronics.

Credit: 2

152 Communication Skills 2

A continuation of the process of improving the student's speaking, reading, writing, and listening skills. The general objective is to explore forms and uses of communication. Assignments will be selected from literature and the mass media. Prerequisite: Eng 151, or 201 with the permission of the department.

Credit: 3

152 Technical Mathematics 2

A continuation of Math 151. These topics are included: measurement concepts, geometric formula evaluation, trigonometric ratios, right triangels, oblique triangles, vectors, identities, interpolation, applied geometric probelms, sine waves, complex numbers exponents and radicals, quadratic and radical equations and formulas, slope, further graphing, systems of three equations, determinants, natural logarithms, and exponentials. Prerequisite: Math 151 or 192.

Credit: 4

158 Physics for the Health Sciences

A study is made of the principal topics of physics, with emphasis and detailed applicatins directed toward the needs of students in the health sciences. The order of topical coverage is similar to that of most introductory physics courses, with abundant specifc references to health-related topics integrated into the body of the material. Those mathematical topics included are made as nearly self-contained as possible.

Credit: 4

123 Electronics Principles and Circuits 2

Major emphasis is placed on semiconductor circuits such as common-emitter, common-collector, and common-base amplifiers, biasing and stabilization; gain and phase relationships; frequency response; coupling techniques; multistage amplifiers; feedback principles, and oscilators. In the laboratory work, the practical operating characteristics of these circuits are studied. Prerequisites: Elec T 122 and Math 152

Credit: 4

139 Biomedical Transducers

The basic theories and concepts of various types of transducers used in biomedical instrumentation are presented, along with methods of measurement by transducer types. Active and passive units are explained. Calibration of various strain gages and testing and handling procedures are introduced. Prerequisite: Elec T 123 or concurrent registration in Elec T 123.

Credit: 4

140 Biomedical Instrumentation I

An introduction to concepts of monitoring various parameters of the human body. Topics include methods of measuringblood flow and pressure using non-invasive tactics. Emphasis is placed on cardiac measurements and patient safety in the hospital environment. Prerequisite: Elec T 123 and Nat Sci 157, or concurrent registration in Elec T 123 and Nat Sci 157.

Credit: 4

157 Anatomy and Physiology for Biomedical Electronics Technicians

A lecture/demonstration course in which the normal structural and functional activities of the human body are surveyed. Micro-and macro- structures and functions of each of the organ systems are discussed, along with structural anomalies and functional dysfunctions. Emphasis is placed on those organ systems normally capable of biomedical measurement or monitoring. Prerequisite: Enrollment in Biomedical Electronics program or consent of instructor.

Credit: 3

153 American Institutions

This is a course designed to assist the student in arriving at a rational and constructive approach to contemporary problems such as poverty, race, urbanization, the family, education, ecology, and government. Subject matter is flexible and may be altered as societal change makes it necessary.

Credit: 3

124 Electronics Principles and Circuits 3

This advanced course considers the use of semiconductor devices in switching circuits. Course topics include waveshaping circuitry such as pulse, logic, and sweep circuits; multivibrators; triggering and wave-shaping techniques. Applications of the FET, UJT, SCR, and IC as they apply to pulse-type circuits are introduced. In the laboratory work, the student makes full use of the calibrated osilloscope in the study of typical pulse circuitry. Prerequisite: Elec T 123 or 191.

Credit: 3

129 Digital Control Systems

A study of logic switching and control systems as used in industry. Descriptions are provided for all the integrated circuit gates and flip-flops and the devices used to interface with the outside world. The course ends with the design of complete control systems to perform specific functions. Laboratory work emphasizes practical applications and troublshooting. Prerequisite: Elec T 122

Credit: 3

137 Biomedical Electronics Technician Intership

The student is assigned to various hospitals and manufacturers to provide a general insight into hospital environment as well as the manufacturers' outlook on what the student can expect regarding employment after graduation. This assignment allows the student to make a decision as to whether to become a service representative for a manufacturer or an in-house biomedical electronics technician for a hospital. Prerequisite: Elec T 140 or concurrent registration in Elec T 140.

Credit: 3

141 Biomedical Instrumentation 2

This course is intended to train the biomedical student in the operation, repair, and calibration of cardiac monitoring equipment, electromyography, intracardiac pressures, and various laboratory devices for analysis of body tissues and fluids. An in-depth analysis of grounding techniques is included. Prerequisite: Elec T 140

Credit: 4

110 The American Economy

A general introduction to major institutions and principles which underlie our contemporary American economic system. The course is designed both to serve the general student and as an intorduction to Soc Sci 211 and 212. Topics considered are: the nature of economics and economic systems, demand and supply, the measurement of economic performance, government in a free enterprise system, problems regarding business and labor organizations, and economic growth and development.

Credit: 3

The following is a list of high school courses that are recommended to prepare fully for the BIOMEDICAL ELECTRONICS TECHNICIAN program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Biology

Physics

Economics

Advanced Algebra with Trigonometry

Electrical Principels

Sem Con Electronics

Applied Electronics

VETERINARY MEDICINE

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ANIMAL TECHNICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are adivsed to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

FIRST YEAR

		CREDITS 1st Sem.	CREDITS 2nd Sem.
801-151	Communication Skills I	3	
806-203	Animal Biology	4	
806-111	Chemistry I	4	
804-201	Intermediate Algebra	3	
091-112	Animal Husbandry	3	
091-105	Veterinary Medical Terminology	2	
091-101	Occupational Preparation	0.5	
801-152	Communication Skills II		3
806-112	Chemistry II		4
809-151	Psychology of Human Relations		3
091-130	Animal Restraint		2
091-120	Lab. Techniques I		3
		19.5	15

SUMMER

091-158	Internship (8 weeks or 320 hours)	3

SECOND YEAR

		1st Sem.	2nd Sem.
809-153	American Institutions	3	
091-140	Animal Anatomy and Physiology	4	
091-126	Vet. Operating Room Techniques	5	
091-115	Zoonosis	1	
809-111	Economics	3	
106-172	Applied Business Training		3
101-114	Applied Accounting		3
091-155	Hospital Supply and Medicants		3
091-151	Clinical and Hospital Techniques		4
091-165	Public Relations		1
091-121	Lab Techniques II		4
		16	18

ELECTIVES

		CREDITS
091-113	Animal Nutrition	2

ANIMAL TECHNICIAN

COURSE DESCRIPTIONS

801-151 Communication Skills I

Communication Skills I is designed to increase a student's ability to read and write. In reading, for example, identification of a writer's thesis and critical evaluation of supportive evidence is emphasized. In writing, clarity, conciseness, organization, and concreteness are reviewed, as well as language mechanics with particular emphasis on grammar and spelling in some sections. These principles of good writing are applied to business correspondence. A research project is also undertaken.

Credit: 3

806-203 Animal Biology

General biological principles emphasizing cell structure and function, comparative morphology of invertebrates, vertebrate anatomy physiology, and genetics. General consideration of biological processes as they relate to human ecology.

Credit: 4

806-111 Chemistry I

This course is designed to expose the students to the fundamental concepts of inorganic chemistry. Emphasis is placed on learning the basic principles and quantitative measurements used in chemistry. This foundation course consists of three hours of lecture and one two-hour laboratory period per week.

Credit: 4

804-201 Intermediate Algebra

This is a study of the real and complex numbers (their construction and resulting properties); how to simplify and factor algebraic expressions using fundamental laws and order of operations; how to solve first and second degree equations and inequalities in one variable; how to graph first and second degree equations and inequalities in two variables; how to solve systems of equations; and how to deal with fractional exponents and radicals. Prerequisite: High school algebra and geometry with average or better grades or a low math placement score.

Credit: 3

091-112 Animal Husbandry

This course is designed to teach about the various breeds and species of domestic and laboratory animals which an Animal Technician may be working with and caring for. Current basic animal husbandry practices are taught with emphasis on selection, breeding, rearing, caring and housing for each kind. Basic types of animal skills are also taught.

Credit: 3

091-105 Veterinary Medical Terminology

Standard terminology is prerequisite to common understanding as well as to any meaningful exchange of information. Due to technical sophistication, this is especially true in veterinary clinics. This course is therefore designed to teach acceptable terminology and spelling for each common clinically recognizable disease or operation. Systems of weights, measures and conversions, as well as signs and abbreviations are also included in the instruction.

Credit: 2

091-101 Occupational Preperation

This course is designed to acquaint Animal Technician students with the college and their career field. Information is presented to help individuals succeed. Training is given to prepare students for the kind of interviews which are necessary for internship and job placement after graduation. Internship requirements are stressed and help is given to prepare the student for such placement with a veterinarian. Students are also exposed to all types of veterinary medicine to familiarize them with the kinds of employment opportunities available when they graduate.

Credit: .5

801-152 Communication Skills II

Communication Skills II is in some respects a continuation of Communication Skills I 801-151. For example, principles of effective communication taught first semester are applied in analyzing the content and methods of the mass media. A portion of the course is also devoted to increasing the student's ability to speak and listen. Finally some imaginative literature is studied for pleasure, for appreciation of it as an art form, and for cultural awareness.

Credit: 3

806-112 Chemistry II

A continuation of Chemistry I, 806-111. Further study of basic chemical principles and the application of these principles. Students are introduced to the properties, structures, and the reactions of organic compounds. Elementary aspects of biochemistry are considered.

Credit: 4

809-151 Psychology of Human Relations

Theories of learning, perception, motivation, emotion, adjustment, and emotional well-being are applied to human relations at home and on the job. In addition to cognitive achievement, classroom interaction and discussion are emphasized.

Credit: 3

091-130 Animal Restraint

The study and practice of restraining large and small animals, poultry, and laboratory animals utilizing safe and humane physical and chemical aspects of restraint. The students use various kinds of restraint equipment and techniques.

Credit: 2

091-120 Laboratory Techniques I

The study and application of parasitology, urinalysis, basic hematology, and basic mycology. An introduction to bacteriology and culturing and sensitivity testing is also included. Prerequisite: Animal Husbandry, 091-112 or consent of the instructor.

Credit: 3

091-158 Internship

Internship (work experience) is a very important phase of practical training for students enrolled in the Animal Technician Program. It generally follows the second semester of class work in the college recess and is conducted during a period of eight weeks. Placement for this training is with a cooperating veterinarian who is licensed to practice in Wisconsin. The student work will be supervised by assigned veterinarian instructors.

Credit: 3

809-153 American Institutions

This course examines the effects of emerging social trends on the individual and the traditional institutions such as family, the media, education, municipal government. The student further develops the ability to defend a position on controversial issues in information gathering, problem analysis, and decision-making; to explore the ways in which new technology and accompanying rising expectations are shaping our future life styles; to evaluate the present role of race, sex, social class, and family background in limiting a person's chances for self-realization; and to describe how organizational theory is reflected in several community activities observed first-hand.

Credit: 3

091-140 Animal Anatomy and Physiology

The study of anatomy and physiology of animals by both lecture and laboratory. The lectures inform the students of the organization and functions of the systems involved in the living body. The laboratory studies are directed toward locating and identifying the anatomical parts and to illustrate how these various parts make up systems and how these systems are all an integral part of each other. Cadavers of the dog and cat are dissected and studied in the laboratory. Prerequisites: Animal Husbandry, 091-112 and taking or completion of Animal Biology, 806-203.

Credit: 4

091-126 Veterinary Operating Room Techniques

The study and practical application of sterile technique, preparation of the surgical site, operating room conduct, assisting the surgeon, and dental prophylaxis. The student also learns the principles of radiography and practical application of same. Included in the course are the use of disinfectants and antiseptics in veterinary medicine; learning nomenclature and some basic uses of surgical instruments, preparation of packs, gowns, gloves, and the use of sterilization equipment; and study of classification and physical properties of anesthetics used in large and small animal vererinary medicine and surgery. Prerequisites: Taking or completion of Chemistry II, 806-112 and Intermediate Algebra, 804-201.

Credit: 5

091-115 Zoonosis

This course covers a complete study of diseases which are transmissable to man from domestic animals, birds, wild animals, and rodents. Also included are such things as vectors, formites, food and feed, etc. New diseases are discussed as well as recent outbraks of transmissable diseases.
Credit: 1

809-111 Economics (General Economics)

This is an introductory course which examines the nature of a market economy and surveys the factors which influence the formulation of national economic policy. The nature of supply and demand, business organization, labor organization, national income analysis, fiscal and monetary policy, and international economic policies are discussed. Basic concepts and analysis are illustrated by reference to a variety of contemporary problems and issues.
Credit: 3

106-172 Applied Business Training

Emphasis is placed on business ethics, public relations, scheduling appointments, reception of clients, and office procedures.
Credit: 3

101-114 Applied Accounting

Practical application of accounting principles; basic business terminology, practices, and techniques. For students not majoring in accounting.
Credit: 3

091-155 Hospital Supply and Medicants

This course entails a study of drugs and other substances of veterinary medical importance. Basic terminology, usage, measurement, administration, drug inventory and safe storage of drugs is emphasized. Prerequisite: Successful completion of all previous Animal Technician courses.
Credit: 3

091-151 Clincial and Hospital Techniques

Study and practical application of basic clinical techniques a technician might be expected to perform in practices such as catherization for urine, preparing and administering medicine under direct supervision of a veterinarian, obtaining a blood sample, nursing care (temperature, pulse, and respiration), simple grooming, nail trim, and plucking ears, first aid treatment, cleaning hospital cages, stalls or runs, cleaning utensils and equipment, general clinic housekeeping, preparing medicants for dispensing to clients on prescription of attending veterinarian, maintaining inventory, and cleaning mobile large animal facilities. Prerequisite: Successful completion of all previous Animal Technician courses.
Credit: 4

091-165 Public Relations

The student is taught the fundamental principles necessary in the veterinarian profession to develop good public and client relations. Included are proper telephone etiquette, personal grooming and hospital attire, ethics, first aid for clients, and job application techniques.

Credit: 1

091-121 Laboratory Techniques II

This course includes the study and practical application of tests for the urinary system which were not covered in Lab Techniques I. Basic clinical bacteriology and microbiology with regard to culturing, sensitivities, staining, Wisconsin milk test, and other tests are also studied. The students are also introduced to and study other testing procedures such as the blood analyzer and its use. Prerequisites: Lab. Techniques I, 091-120 and taking or completion of Intermediate Algebra 804-201.

Credit: 4

091-113 Animal Nutrition

Nutrition for the various species of domestic and laboratory animals which an Animal Technician may be working with and caring for is stressed in this course. The relationship of disease and body functions as related to nutrition is included as well as feeding to prevent malfunction of animal health and production. Prerequisite: Taking or completion of Animal Husbandry, 091-112 or consent of the instructor.

Credit: 2

The following is a list of high school courses that are recommended to prepare fully for the ANIMAL TECHNICIAN program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

Biology

Chemistry

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Economics

Advanced Algebra

Bookkeeping (I)

VETERINARIAN

The state of Wisconsin has no college or university that offers a degree in veterinary medicine. The following pre-veterinary outline was obtained from a college or university outside the state of Wisconsin that does offer such a program. It is the responsibility of each student to investigate the policy of the college of their choice for specific course requirements. It is imperative to check also the specific policies regarding academic requirements of admission.

COURSE OUTLINE

PRE-VETERINARY

The College of Veterinary Medicine on the St. Paul campus will consider qualified students during their third year of the pre-veterinary program. A minimum of 90 quarter-credit hours is required prior to admission to the college. The current bulletin from the college can be secured from the College of Veterinary Medicine, 295K Animal Science/Veterinary Medicine Building, 1968 Fitch Avenue, University of Minnesota, St. Paul, Minnesota 55108.

The trend in Minnesota and throughout the country is to complete 3 or more years of college work before admission to veterinary school. About one-fourth of those now in veterinary school have a bachelor's degree. Degree majors range from history, German, and economics to biology, philosophy, and others.

Courses that may be beneficial later in veterinary school include genetics, developmental biology, comparative anatomy of vertebrates, cellular biology, and biochemistry.

It is recommended that students take at least courses in two sciences or a math and a science course each quarter along with the liberal education electives or required courses.

Competition for entry into the College of Veterinary Medicine is keen and is based in part on grades and test scores, experience with animals, employment experiences, and similar backgournd.

The following courses should satisfy the recommendations for entrance into the college:

Biology
Biol 1109-1110-General Biology (10)

Chemistry

Chem 1110-1111-1112-General Chemistry
(or) Chem 1130-1131-1132-General Chemistry (15)
Chem 3210-Introduction to Qualitative Analysis (5)
Chem 3512-3513-Organic Chemistry (10)

Economics
Econ 1001-Introduction to Economics
(or) Econ 1004-Principles of Economics: Micro
(or) Econ 1005-Principles of Economics: Macro (4)

English
Engl 1106-1107-Freshman Composition (8)

Mathematics
Math 1110-College Algebra (5)
Math 1185-Pre Calculus (5)
(High school trigonometry is acceptable; high school prerequisite is 2 years of algebra and 1 year of geometry).

Physics
Phys 1001-1002-1003-Elementary Physics (12)
(or) Phys 1107-1108-1109-General Physics (15) (see math requirement)

Public Speaking
Spch 1101-Rhetroic of Out Times (3)
Spch 1111-Beginning Public Speaking (3)

PRE-VETERINARY

COURSE DESCRIPTIONS

1109-110 General Biology (5 cr each)

An introducation to fundamental concepts of biology stressing evolution, phylogeny, population dynamics, behavior ecology, genetics development, anatomy, physiology, and cell and molecular biology.

1110-1111-1112 General Chemistry (5 cr each; 1103-1104(exceptions permitted only by deptl action) 1130-1131-1132 primarily for students who will take more than 15 cr in chemistry. Prereq: high school chemistry and high school algebra.)

Fundamental principles exemplified by study of elements, compounds, and their reactions.

1130-1131-1132 General Chemistry (5 cr each; 1103-1104(exceptions permitted only by deptl action) 110-1111-1112; primarily for chemistry majors and others selected for aptitude and interest; prereq high school chemistry and high school algebra.)

Fundamental principles exemplified by study of elements, compounds and their reactions.

3210 Introductory Quantitative Analysis (5 cr. prereq 112 or 1132)

Theory and practice in analytical techniques; introduces gravimetric, volumetric, and spectrophotometric.

3512-3513 Organic Chemistry (5 cr each. 1500 or 3530;prereq 1112 or 1132)

The chemistry of carbon compounds with emphasis on those of biological importance

1002 Introducation to Economics (4 cr (cr not allowed toward economics major or minor) designed specifically for liberal education purposes.)

General description of the economy of the United States and an analysis of contemporary economic problems. Will introduce the student to the major economic issues and problems of the day and provide a simple framework, used by the economist, for analysis of these issues and problems.

1004 Principles of Economics: Micro. (4 cr)

Demand and supply, utility, producation and cost output market analysis, input market analysis, applications of microeconomics. Of value to the general education student and required for majors in economics, business administration, accounting, and for minors in economics.

1005 Principles of Economics: Macro (4 cr)

National income accounting, national income theory, public finance, money, monetary policy, international trade, economic growth. Of value to the general education student and required for majors in economics, business administration, accounting, and for minors in economics.

1106-1107 Freshman Composition (4 cr each; cr not applicable to English major or minor; prereq only for student speaking English as a second language 1801 or △)

Expository and argumentative writing.

1110 Elementary Algebra (5 cr. 1153, 1185, CLEP cr in the General Exam; students with 2 yrs or more of high school algebra may earn cr if work is of passing quality but no grades will be attached to these cr...others earn cr and grades as usual; prereq 1 yr of algebra)

A course stressing basic manipulative skills and problem-solving techniques.

1185 Pre-Calculus Analysis (5 cr. 1160. 1296; prereq 2 yrs algebra and 1 yr plane geometry)

Logic, elementary set theory, function concept, inequalities, theory of equations, trigonometric identities and equations, inverse functions, graphing.

1001-1002 1003 Elementary Physics (4 cr each; 3 hrs lect. 2 hrs lab)

Beginning physics for meeting minimum requirements in certain preprofessional fields and a general survey for those not planning to continue in the physical sciences. Phys 1001 must be taken first. Phys 1002 and Phys 1003 can be taken in any order.

1107-1108-1109 General Physics (5 cr each; primarily for science majors and engineers; prereq completion of or Math 1296 for 1107...completion of Math 1297 or 1108.

Calculus-level general physics course. Covers topics in mechanics, heat, sound, light, electricity, magnetism, and modern physics.

11011 Rhetoric of Our Times (3 rd)

Introduces the principles and methods of persuasion in terms of a traditional rhetoric orientation. A study of major theoretical contributions to human discourse and an investigation of recurring questions facing the user and receiver of contemporary rhetoric.

1111 Beginning Public Speaking (3 cr. prereq 1101)

Application of the theoretical bases of rhetoric to the public speaking situation.

The following is a list of high school courses that are recommended to prepare fully for the PRE-VETERINARY program at any college or university outside the state of Wisconsin. See Appendix I for the course descriptions.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

Physics

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Sociology

Economics

Advanced Algebra with Trigonometry

Advanced Math

Speech

VISION CARE

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DISPENSING OPTICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Year First Semester	Credit
105-132 Small Business Principles	3
516-110 Orientation to Optics I	6
516-120 Optic Lab Techniques I	3
804-110 Math Computations (3 weeks)	1
804-112 Basic Algebra (6 weeks)	2
516-116 Lab Materials & Procedures I	4
	10

Second Semester	
516-112 Orientation to Optics II	5
516-124 Optic Lab Techniques II	3
801-151 Communication Skills I	3
804-116 Basic Trigonometry (9 weeks)	2
806-103 Body Structure & Function (9 weeks)	3
516-117 Lab Materials & Procedures	2
	18

Second Year First Semester	
516-100 Geometric Optics I	2
516-105 Ocular Anatomy	1
516-134 Ophthalmic Dispensing I	4
801-152 Communications Skills II	3
809-110 Economics	3
Elective	3
	16

Second Semester	
516-104 Geometric Optics II	3
516-136 Ophthalmic Dispensing II	5
809-151 Psychology of Human Relations	3
809-153 American Institutions	3
Elective	3
	17

Elective	
516-140 Clinical Experience	2

DISPENSING OPTICIAN

COURSE DESCRIPTIONS

105-132 Small Business Principles

This course is designed to meet the needs of students who wish to learn more about the challenges and rewards of operating a small business. Specific areas covered are: The Environment for Small Business Managers; Managerial Functions, Relations and Practices; Initial Problems in Starting; Selling and Marketing Research; Financial and Administrative Control; Legal and Governmental Controls; Operating Certain Types of Small Businesses.

This course is recommended for those students desiring a lecture-discussion approach to learning about the management of a small business.

Credit: 3

516-110 Orientation to Optics 1

This course will serve as an introduction and preparation to the more specialized studies and skills of the laboratory optician. Students will become familiar with the work of the laboratory optician, the ophthaimic dispenser, the optometrist and the ophthalmologist and how they relate to the optic field. Prerequisite(s): Math Computation and Basic Algebra enrolled concurrently.

Credit: 6

516-120 Optic Lab Techniques 1

This course will provide the student with the basic experience needed to gain knowledge and practice in the rough surfacing of spherical, cylindrical, and prismatic lenses. The student will become proficient in the use of various types of equipment, machinery and tools used. The student will also lay out single vision and multi-focal lenses; compute and surface strong convex lenses, high plus lenses, bicentric lenses, prism segment lenses, myodisc bifocals and plastic lenses. Prerequisite(s): Math Computation and Basic Algebra enrolled concurrently.

Credit: 3

804-110 Math Computations

Math Computations includes addition, subtraction, multiplication and division of whole numbers, fractions, and decimals including the conversion of fractions to dicimals and decimals to fractions.

Credit: 1

804-112 Basic Algebra

Topics included in Basic Algebra include signed whole numbers, fractional and nonfractional equations, fractions, beginning graphing formula rearrangement, and solving systems of equations. Prerequisite(s) Math Computations or consent of instructor.

Credit: 2

516-116 Lab Materials and Procedures 1

This course will serve as an introducation into the materials and procedures used in a surface laboratory. The student will be involved in learning safety procedures in the surface laboratory. Preparation and purpose of materials used for equipment operation will be explained, as well as the effect created by improper use or wearing down of these materials.

Procedures for equipment operation will be explaind and demonstrated so that the student will be able to operate this type of equipment to process rough or semi-finished lens blanks. Procedures to determine production schedules, breakage, and flow chart operations will also be explained. The student will be able to chart a producation schedule, put this schedule in operation, and eventually evaluate the operation and make corrections necessary to increase production and efficiency. Prerequisite(s) Math Computation and Basic Algebra enrolled concurrently.

Credit: 4

516-112 Orientation to Optics II

This course is a continuation of Orientation to Optics 1 - basic information on types and designs of lenses, effects of light on lenses, optical supplies, and optical terminology are included. Optical equipment, repair, and maintenance are also part of this course. Prerequisite(s) Orientation to Optics 1, Math Computation and Basic Algebra.

Credit: 5

516-124 Optic Lab Techniques II

This course will provide the student with the experiences necessary for gaining proficiency in the laboratory finishing operations. The operations of neutralizing, layout, cutting, edging and beveling of both single vision and bifocal lenses will be included. In addition, proficiency will be gained in the insertion of lenses into combination and plastic frames, lens drilling and mounting into rimless, semi-rimless mountings so that the graduate will have the technical competence required in the commerical ophthalmic laboratory. Prerequisite(s): Optic Lab Techniques 1 and Math Computation and Basic Algebra.

Credit: 3

801-151 Communication Skills 1

Communication Skills 1 is an introducutroy course in communications emphasizing principles of standard, educated, written English usage. Principal areas of consideration are spelling, sentence structure, grammatical usage problems, punctuation and capitalization. This course stresses principles essential to successful expository communication, both written and oral.

Credit: 3

804-116 Basic Trigonometry

Material included in Basic Trigonometry is right triangles, vectors, trig ratios of general angles, oblique angles, complex numbers, sinewave analysis and applied geometric problems. Prerequisite(s): Basic Algebra and Calculations & Slide Rule or consent of instructor.

Credit: 2

806-103 Body Structure and Function

This is a course which is concerned with the science of the human body. Its purpose is to present an over-all view of the human body - what its parts are, what they do, and how they work together.

Credit: 3

516-117 Lab Materials and Procedures II

This course is similar to Lab Materials and Procedure 1 except that the course will cover the finish area. Prerequisite(s): Math Computation and Basic Algebra and Lab Materials & Procedures 1.

Credit: 2

516-100 Geometric Optics 1

This course contains information and experiences that enable the student to gain a knowledge of the basic principles of light, included will be reflection of plane and spherical surfaces, refraction through prisms and spherical surfaces. Prerequisite(s): Basic Trigonometry, Completion of all frist year Optical courses.

Credit: 2

516-106 Ocular Anatomy and Physiology

This course deals with the science of the human eye and surrounding structures, their parts, and functions. Information will also be gained in the common diseases of the eye and orbit and related terminology. Prerequisite(s): Body Structure and Function, Course 806-103.

Credit: 1

516-134 Ophthalmic Dispensing 1

The student will learn the role and the ethics and legal responsibilities of the dispensing optician. He/she will learn what equipment is available in the normal dispensing office and how the equipment is to be used.

Credit: 4

801-152 Communication Skills II

This course stresses the application of principles essential to written and oral expository communication. Principal areas of study are paragraphs, outlines, written reports, business correspondence, oral reports, vocabulary, and listening and note-taking.

Credit: 3

809-110 Economics

This introducutory course in economics explains the basic problem of economics - satisfying unlimited wants with limited resources. Briefly explored are the relationships between alternative economic systems, economic growth, environmental damage, and alternative life styles. The course also covers the problems of unemployment and inflation by exploring the relationships between such variables as prices, GNP, money supply and its velocity, governmental spending and taxation and energy problems and outlook.

Credit: 3

516-104 Geometric Optics II

The student will learn the relationship between the focal lengths of lenses and their use in eyewear, included will be thick lens systems, optical instrument theories, refractions and lens aberrations, and geometric principles as they relate to the optical industry. Prerequisite(s): Geometric Optics 1.

Credit: 3

516-136 Ophthalmic Dispensening II

The student will learn to work with more complex types of prescriptions in dispensing. He/she will also learn the roles of style, fashion, and psychology aspects in dispensing. Included in the course will be clinical techniques used in fitting and adjusting eyewear. Prerequisite(s): Ophthalmic Dispensing 1.

Credit: 5

809-151 Psychology of Human Relations

This course is designed to explore relationships between the general principles of psychology and our everday lives. Course procedures are especially geared toward providing the following:

1. Better understanding of why others, as well as ourselves, act or behave as we do.
2. Individual insight into how the student relates to himself and others within the environment of the family, the world of work and society; and
3. Awareness of a variety of skills enabling the student to be more successful in coping with the problems of daily living and work.

Credit: 3

809-153 American Institutions

The study of organized systems of social relationships which embody certain common values and behavioral patterns and meet certain basic needs of the social community. Included in this study are: the objective and subjective examinations of Religious, social, educational, governmental, and family institutions, and the processes of social change.

Credit: 3

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516-140 Dispensing Optician Clinical Exp.

The student will be assigned for a one semester period to a cooperating dispensing office for clinical experience under the direction of a dispensing optician and in accordance with the training plan. Prerequisite: Ophthalmic Dispensing I and Geometic Optics I.

Credit: 2

The following is a list of high school courses that are recommended to prepare fully for the DISPENSING OPTICIAN program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

- Biology
- English Language Arts
- Developmental Writing
- Writing Seminar
- Advanced Algebra with Trigonometry
- Economics
- Psychology

LABORATORY OPTICIAN

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

First Semester

Ophthalmic Optics 456-310
Optics Laboratory Techniques I 456-320
Programmed Math 804-310
Applied Communications 801-359
Small Business Management 105-332

Second Semester

Optics Finishing Lab 456-324
Life Skills 809-360
Optics Laboratory Experience 40/wk for 5 weeks

(Assignments to Optical Laboratories)

LABORATORY OPTICIAN

COURSE DESCRIPTIONS

456-310 Ophthalmic Optics

This course will serve as an introduction and preparation to the more specialized studies and skills of the laboratory optician. A familiarization of the work of the laboratory optician, the opthalmic dispenser, the optometrist and the opthalmologist and how they relate to the optical field. Basic information on types and designs of lenses, effects of light on lenses, optical supplies and optical terminology. Optical equipment repair and maintenance will also be included.

456-320 Optics-Laboratory Techniques

These courses will provide the student with the basic experiences needs to gain knowledge and practice in the rough surfacing of spherical, cylindrical, and prismatic lenses. The student will become proficient in the use of various types of equipment and machinery, and tools used. The student will also layout single vision and multifocal lenses, compute proper curves and thicknesses, compute and rough surface strong convex curves, high plus lenses, bicentric lenses, prism segment lenses, myodisc bifocals and plastic lenses.

804-310 Programmed Math

This course covers fractions, decimals percentages, ratio-proportion, metric, and basic algebra.

801-359 Applied Communications

This course is designed to improve the student's speaking, reading, writing, and listening skills. Individual and occupational needs are met in practical oral and written class work.

105-332 Small Business Management

This course will introduce students to the following areas as they relate to the management of small business; Business Organization, Credit Contracts, Banks-Financial Institutions, Taxes, Government Control, Wages and Salary, Insurance, Unions, Accounting, Personnel, Starting Own Business.

456-324 Optic Finishing Lab

This course will provide the student with the experience necessary for gaining proficiency in the laboratory finishing operations. The operations of neutralizing, layout, cutting, edging and beveling of both single vision and bifocal lenses will be included. In addition, proficiency in the operations for insertion of lenses into combination and plastic frames, lens drilling and mounting into rimless and semi-rimless mountings will also be gained so that the graduate will have the technical competence required in the commercial ophthalmic labatory.

809-360 Life Skills

This course provides a guide for discussion groups seeking a better understanding of human abilities and habits, personality behaviors and social patterns which will affect each person at present and in the future at home and on the job.

The following is a list of high school courses that are recommended to prepare fully for the LABORATORY OPTICIAN program at any technical college in the state of Wisconsin. See Appendix I for the course descriptions.

Advanced Algebra

English Language Arts

Biology

Physics

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OPTOMETRIC ASSISTANT

The following course outline is representative of an educational program at a technical college in the state of Wisconsin. Students are advised to consult the bulletins of the technical college of their choice for specific course outlines and descriptions. It is imperative to check also the specific policies regarding academic requirements of admission. See Appendix II for a list of competency requirements for basic courses in the following curriculum.

COURSE OUTLINE

Body Structure and Function 806-303
Med. Terminology 509-320
Orien./Health Service 509-300
Basic Comm. I 801-354
Basic Health Lab. 509-301
Basic Psychology 809-346

All students take the same courses except for one elective.

Prof. Accounting 101-370
Prof. Filing 105-316
Health Occup. Typing 106-366
H.O. Office Mgmt. 10[illegible]-356
Basic Comm. II 801-355
P.V.R. 509-308
Elective -- Ocular Anatomy 516-306

General Optics 516-310
Dispensing 516-302
Clinical Procedures 516-348
Visual & Development Training 516-330

CLINICAL EXPERIENCE 5 Weeks

Students assigned to offices according to program in which they are enrolled.

Optometric Assisting 316-348

OPTOMETRIC ASSISTANT

COURSE DESCRIPTIONS

806-303 Body Structure and Function

The main purpose of this course is to provide foundation knowledge about the human body. The student will develop knowledge of the body as an integrated structure and its supportive functions and how the body distributes food and oxygen; as well as controls its functions and provdies for survival of its kind.

509-320 Medical Terminology

The student will learn to pronounce, spell and define common medical terms correctly; will become familiar with common prefixes, suffixes, word roots, and combined forms used in medical terminology. The student will build numerous medical terms using these elements and will become familiar with common medical abbreviations.

509-300 Orientation to Health Services

This course will acquaint the student with health organizations both national and local, professional and governmental. The student will obtain an orientation to medical assisting dental assisting, optometric assisting and ward clerk positions.

801-354 Basic Communications I

Basic Communications I is an intordoctory course in communications emphasizing basic principles of standard educated written English usage. Principal areas of consideration are spelling, sentence structure, grammatical usage problems, punctuation and capitalization. This course stresses principles essential to successful expository communication, both written and oral. Prerequisite: Placement by testing.

809-346 Basic Psychology

This is a basic psychology course offered to the students who enter the Health Occupations Core Curriculum. It will provide the student with an insight into the challenges and responsibilities of the health worker, as well as a philosophy of individual worth and self-understanding. Involved, too, will be the understanding of the values and behaviors of human beings and their interaction with others by the student in both his or her home life and on the job.

101-370 Professional Accounting

This is a basic course in record keeping for those students who will be employed by either a physician, dentist, or optometrist. The course is designed to give the students sufficient knowledge to handle the accounting records of a professional person. Primary topics will include cash receipts, patient ledgers, daily log, and the reconciliation of a bank statement. A practice set is included in this course to give the student practical experience in handling the various reports, forms. and records. Students will be encouraged to make practical use of the 10-key adding machine.

105-316 Professional Filing

The course in filing covers the principles and procedures in filing. Basic terms and concepts are defined. All the important indexing principles - the backbone of filing procedures - are covered in twenty compact rules. Each rule is followed by a sufficient number of practice exercises to assure mastery of the rules.

106-366 Health Occupations Typing

This course is designed to provide the health occupations student with a complete review of basic typewriting, including efficient machine control, correct typewriting techniques and practices, and development of speed and accuracy in preparation for the typing of professional material in the health field.

106-356 H.O. Office Management

This course is designed to give the student a knowledge and understanding of the principles and physiological functions on which the procedures in the Health Practioner's Office are based. Appointment control, telephone communications, filing, accounting, and insurance forms as they relate to the office, will be stressed.

801-355 Basic Communications II

Basic Communications II is a sequel to Basic Communications I and seeks to apply and build on those mechnical skills learned in Basic Communications I. The course is to be practical and functional with emphasis placed on communicating on the job. Students are encouraged to discover the differences and similarities in the various methods of communication discussed. Prerequisite: Basic Communications I or equivalent.

509-308 Personal and Vocational Relationships

This course will provide the student with a basic understanding of the ethical and legal considerations involved in the field of health occupations. The major topics covered by this course include: licensing, legal relationship of practioner and patient, professional liability, personal involvement, professional secrecy, codes of ethics, ethical conduct between health personnel and patients, and personal ethics.

516-306 Ocular Anatomy & Physiology

This course deals with the sciences of the human eye and surrounding structures, their parts and functions. Diseases of the eye and orbit and related terminology will also be included.

516-310 General Optics

This course covers the general physiology and psychology of vision which includes the general physiology of the eye, the definitions relating to the general psychology of vision, and visual perception and spatial localization. The student will learn basic information in the field of visual optics including the refracting system of the eye, defects of the eye, accommodation ametropia, and the iris and pupil. The student will also study the sensation of vision, color, physical optics, ophthalmic lenses, and visual aculties.

516-302 Dispensing

The student will acquire fundamental knowledge about; the construction and types of frames, the alignment of frames, frame measurements, patient measurements, types of lenses, polarization, corrective protective eyewear, lens and frame manipulation, and neutralization. In addition, the student will learn the importance and art of cosmetic dispensing of lenses and frames, the dispensing of multifocals, and the fundamentals of frame repairs.

516-348 Optometric Assistant Clinical Experience

This five week course will involve an assignment of the student to practioner's office or clinic. The student will function as the practioner's assistant applying the skills and knowledge obtained in the program's education process. The clinical assignments will be for two weeks duration. Following the first two weeks the student will report back to the campus to participate in individual group conferences on individual clinical experiences. Besides the conferences the student will be assigned to laboratory exercises designed to strengthen individual proficiency in areas of discerned weakness. Following the week of conferences and laboratory exercises the student will be assigned to another practioner's office for two more weeks of clinical experience. Travel to and from the practioner's office will be the responsibility of the student.

516-330 Visual and Development Training

The student will be introduced to developmental vision and become familiar with developmental vision testing and training techniques. There will be lecture and laboratory presentations of various tests associated with developmental training, the principles of vision balance posture including proper postures for reading and writing. The student will acquire knowledge about space organization, methods of perception and the general visual characteristics of children. The student will be introduced to visual training techniques.

The following is a list of high school courses that are recommended to prepare fully for the OPTOMETRIC ASSISTANT program at a technical college in the state of Wisconsin. See Appendix I for the course descriptions.

Biology

English Language Arts

Developmental Writing

Psychology

Typewriting (I)

Business Law

Office Practice

OPTOMETRIST

The state of Wisconsin has no college or university that offers a degree in optometry. The following pre-optometry outline was obtained from a college or university outside the state of Wisconsin that does offer such a program. It is the responsibility of each student to investigate the policy of the college of their choice for specific course requirements. It is imperative to check also the specific policies regarding academic requirements of admission.

COURSE OUTLINE

PRE-OPTOMETRY

Students should begin as early as possible to acquire education in the fundamental sciences. Two years of pre-optometric education must be taken at an accredited college or university. With the proper selection of initial courses, the student may transfer from a pre-optometry program in a junior or other accredited college to complete his degree at one of the optometric schools or colleges. In a total of at least six college years, four will be spent in professional optometric education.

Requirements for admission to the college include a minimum of two years undergraduate collegiate education with specific core needs in biology, chemistry, physics, psychology and mathematics.

Specific course requirements are:

	Credits
English Composition	6
English or American Literature	6
Differential and Integral Calculus	6
Physics (General)	8
Biology (General)	8
Chemistry (General)	8
Organic Chemistry	4
Social Science	6
Psychology (Introduction)	3
	55

The following is a list of high school courses that are recommended to prepare fully for the PRE-OPTOMETRY program at any college or university outside the state of Wisconsin. See Appendix I for the course descriptions.

Biology

Advanced Biology

Chemistry

Advanced Chemistry

Physics

English Language Arts

Developmental Writing

Writing Seminar

Psychology

Sociology

Economics

Advanced Algebra with Trigonometry

Advanced Math

HEALTH CAREERS GUIDANCE MANUAL

..For the Greater Milwaukee Area and Wisconsin

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APPENDIX I

DESCRIPTIONS OF RECOMMENDED HIGH SCHOOL COURSES

APPENDIX I

DESCRIPTIONS OF RECOMMENDED HIGH SCHOOL COURSES

The following section contains an alphabetical listing and description of courses that the writers recommend students to include in their high school academic schedule as it relates to an interest in a general health field or a specific career ambition. In the estimation of the writers, the courses which are listed and described are representative of the secondary school curriculums in most Wisconsin high schools. It is the responsibility of each student (along with their academic advisor) to investigate the general program offerings and specific admittance requirements for the school or hospital at which they will begin the educational training in their chosen health careers and occupations, so as to entail the least amount of duplication of effort while allowing for the best development of the student's potential.

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ART

Art Foundations . . . . .The art foundations course provides the basis for the special subject offerings, which students may eventually choose to continue. The course includes some basic understanding of art heritage and aesthetic judgment, and is based upon the following four areas of study organized within the year by the individual instructor:

Drawing and Composition - This portion of the course stresses the fundamentals and techniques of drawing with various media, but with emphasis upon drawing as an end in itself rather than as a step in another form of expression. The student should develop a sensitivity to environmental images through practiced visual awareness and graphic expressions.

Two-Dimensional Design - This portion of the course provides the student with a background and analysis of design on flat surfaces. Students deal with design problems and terminology and work with elements and principles in processes such as printmaking, painting, collage, montage, photography, and study of natural and human design in the environment.

Three-Dimensional Design - This portion of the course provides the student with a basis in three-dimensional design criteria which working with materials such as fibers, sculpture or construction in clay, wire, wood, plaster, and metal.

Art Survey - This portion of the course provides the student with an understanding of our art heritage and visual literacy through examination of art forms, past and present, and discussion of their contribution to mankind.

Ceramics . . . . . Ceramics provides the student with an in-depth knowledge of hand building and wheel techniques and decoration of clay. The students use these techniques in building pottery and sculpture and observe and discuss past and present examples of handbuilt ceramics. The level of performance in Art Foundations is a prerequisite consideration.

Craft Survey . . . . .This course provides instruction in all craft areas with individual selection of a specific area at the discretion of the instructor. The course is designed for students who are not enrolled in a vertical oriented art program for one reason or another.

Drawing and Painting . . . . .This is an in-depth one semester course which uses drawing and painting techniques learned in the Art Foundations course to allow students to continue growing in visual communication through the drawing and painting media. The level of performance in Art Foundations is a prerequisite consideration.

Printmaking . . . . .This course provides the student with an understanding of, and experience in, the five printing processes:

Relief - linoleum, cardboard, plaster, woodcuts, collograph.
Stencil - silkscreen.
Photographic printing - photograms.
Planographic - mono-print, paper lithography.
Itagloic - scratchboard, drypoint, etching.

The student should become aware of the heritage in printmaking and its importance as an art form and to mass society. The level of performance in Art Foundations is a prerequisite consideration.

Sculpture . . . . .This one-semester course allows the student to continue an in-depth involvement with sculpture materials and processes begun in Art Fondations. The student works in both additive and subtractive processes in one or more of the following media: clay, plaster, wood, stone, metal, and plastics. The students view and discuss past and present sculptures to acquire an appreciation for the sculpture of other artists. The level of performance in Art Foundations is a prerequisite consideration.

BUSINESS

Bookkeeping I . . . . .This course offers students an opportunity to learn the basic principles of accounting. Vocabulary, business forms, the use of records, the bookkeeping cycle and the relation of each step in the cycle and the relation of each step in the cycle to the whole is taught. A thorough knowledge of keeping books is provided through exercises, projects, and practice sets. The course gives the pupils sufficient knowledge to keep their own finanacial records, the records of a club, and the records of a small business. A unit on data processing is included in the course content. The practice sets include business papers used in an actual business situation.

Bookkeeping II . . . . .This course is a continuation and expansion of the fundamentals and principles learned in the basic course. The more complex problems broaden the students experiences and increase their competency in dealing with accounting situations on a higher level. Advanced bookkeeping develops the variety and complexity of transactions which are commonly found in business. The advanced course emphasizes the development of the pupil's ability to interpret bookkeeping data - how each kind of business transaction affects the balance sheet and the income statement and how the financial statements are interpreted to report on the condition and progress of a business. In the advanced course there is increased emphasis on such topics as departmental and payroll accounting, partnerships, inventory control and valuation, business budgets, various types of taxes, corporations, various types of sales, manufacturing and cost accounting, comparative analysis of financial reports, and systems and automation. Bookkeeping I is a prerequisite for Bookkeeping II.

Business Law . . . . .Business Law is the study of the principles of law that apply to the relationships that grow out of the varied business activities. It is a course that treats basic fundamentals rather than one which overemphasizes technical details of professional law. It is the aim of the course to acquaint the students with their legal rights and responsibilities in everyday business operations and to help them develop the ability to distinguish between those situations which involve a legal obligation and those which involve a moral obligation and the ability to act in accordance with sound ethical principles. Included in the course is information about laws governing sales, contracts, insurance, and negotiable instruments. Business Law is helpful vocationally for the business education pupil, but it also has implications for general education. Pupils should understand the concept of contract in maintaining their households and in conducting matters of personal business. Business Law is a one-semester subject.

Office Practice . . . . .This one-semester course is an overview of the office and the duties and qualifications of secretaries. It provides a program of business information and skills needed by office workers. A good foundation in English as well as the ability to type accurately with reasonable speed are essential prerequisites to the course.

Shorthand I . . . . . This beginning course introduces the student to the mechanics of writing by sound with symbols and reading from shorthand notes. Stress is placed on the building of a business vocabulary, a thorough knowledge of commonly mispelled words, and a good working knowledge of common punctuation rules and their usage as applied to business letters. The ability to write simple paragraphs and letters serves as the foundation for the development of advanced skills in writing and transcribing shorthand. Work is begun on building speed in taking dictation, and the discussion of personality, good grooming, poise, and ethics in the office. Typewriting I is a prerequisite.

Shorthand II . . . . . This course provides a continuation of the spelling, vocabulary, and punctuation skills into the third and fourth semesters of shorhand. More emphasis is placed on proofreading. The course primarily deals with mailability, stressing transcription work and speed work. More time is spent on discussing the proper job, filling out applications and personal data sheets, interviewing, and other topics related to office work. Typewriting II is a prerequisite.

Typewriting I . . . . .This is a two-semester course in which the major emphasis is upon acquiring familiarity with the typewriter and developing correct habits of operation. Timings and exercises to help develop increased skill in control and perfection of touch control are provided. The course involves centering and tabulation problems, business letters, other business papers, and problems in composition. This is a course for personal, secretarial and office situations.

Typewriting II . . . . .This course is geared to students interested in office work. Emphasis is on the ability to type accurately at higher rates both on straight copy and office problems. Office problems include the business letter styles, tabulation problems, business forms, manuscript typing, preparing materials for duplicating and operating the duplicating machines. Personality and personal appearance, applying for a job, and other topics related to office work are discussed. Evaluation is based on producing usable work in a period of time. This includes five-minute, ten-minute and longer time writings on straight copy as well as office-type problems. The level of performance in Typewrting I is a prerequisite consideration.

HOME ECONOMICS

Chef Food . . . . .This one-semester course is designed for those who are interested in meal preparation as an interest, hobby or career. Emphasis is on planning, preparation and service of appetizing and nutritious meals.

Clothing Management . . . . .This two-semester course includes both Clothing 1 and Clothing 2. Clothing 1 is advised for the student who has a strong interest in fashion and clothing construction. The course includes units in fashion history, textile and fabric study, construction techniques, and basic fitting and pattern alteration. Clothing 2 includes units in marketing procedures, planning wardrobes with an emphasis on fashion trends, and consumer information related to the clothing and textile field. Construction units involve working with new fabrics, new techniques, and more advanced patterns.

Meal Management . . . . .This is a two-semester course which includes Foods 1 and Foods 2. In Foods 1 the students learn to plan, prepare and serve meals, to preserve food and to prepare special meals for weight control and other dietary needs. In Foods 2 the students will understand international food customs by preparing dishes from "around the world". Time is devoted to a variety of meal service styles using different menus, seetings, and serving procedures. Time is also spent in the care and purchase of dishware, appliances and cooking utensils.

INDUSTRIAL ARTS

Electronics I . . . . .This course covers the fundamentals of direct current circuits and alternating current circuits. Units of instruction are discussed in theory and then the theory is proven by actual experimentation with circuits. Typical units of instruction included are: capacitor action, alternating current motors, inductance, use of test instruments, project development, sources of electricity, understanding electrical circuits, and others.

Electronics II. . . . .This course is developed around the theory and operation of the transistor and related semiconductor devices. Practical experience is derived from construction, troubleshooting, and servicing semi-conductor circuits. Typical units of instruction included are: diodes, field-effect transistors, unijunctions transistors, computer circuits, photoelectric circuits, silicon controlled rectifiers, and others. The variety of the electroncis industry as a career selection is an integral part of the course guidelines.

Electronics III. . . . .This course is developed around the theory and operation of industrial controls, communications, digital circuits, and hybride circuits. Practical experience is derived in construction, trouble-shooting, and servicing of the above circuits.

Woodwork . . . . . This course offers the pupil an opportunity to plan a project with special emphasis on good construction, design and finish. The students draw their won project, make a bill of material, and figure the cost before starting the job. They learn how to properly use the various hand tools and receive basic information on the safety, use and care of woodworking machines. Some class time is used to study plastics, laminates and upholstery.

LANGUAGE ARTS

Developmental Writing . . . . .Developmental writing is primarily concerned with reviewing techniques for improving sentences and for writing more effective paragraphs. It will present and explore the basic fundamentals of expository writing. The expression of ideas according to a systematic procedure and the means of attaining unity, adequate development of ideas, coherence and emphasis in writing is stressed.

English Language Arts . . . . .This two-semester course approaches the study of literature and composition thematically. Typical thematic units include: The Problem of Difference, Learning To Live Together and Survival. Within these units the student studies novels, poetry, plays, and short stories, plus composition, vocabulary, literary terminology, and speaking. The emphasis in composition helps the students increase their ability for impose form and order on their writing beginning with the paragraphy and extending to the theme.

German I . . . . .In keeping with the audio-lingual aspects of language currently emphasized, the course in German features the progressive and fosters an appreciation of German culture. For the first year German students study the text and the accompanying tapes set forth as basic the necessity of thinking of every item in German as going through five essential stages: recognition for identification of parts and meaning; imitation for correct pronunciation; repetition for strengthening of memory; variation for extension of vocabulary and structure; selection for meaningful response. Reading and writing German are introduced in the question-answer practices, the pattern drills, and the related coversations only after students have mastered the material through aural-oral practice.

German II . . . . Aiming for competency in reading and communication, the second year German students extend their control of grammatical forms needed for generating correct sentences and for appreciating grammatical structure as a relevant part of culture. Reading for comprehension encourages reading without translating conversations, scene-sequences presenting culture contrasts, and reports on varied facets of German life; however, translation is used to assure proper grasp of difficult formal narrative and of literary style. Historical monographs and a novellet, *Liebr aud den dritten Blick*, provide variety.

German III . . . . .While third level German materials and content become more complex, students have more freedom in the language activities: they work in the areas of their greatest needs, and they follow their own interest in the speaking, reading, and writing of German as a communicative living language. Acquainting the student further with the country of Germany and its people, their habits and institutions, their culture and manner of thought, the reading is accompanied by acquisition of background information. Among the literary masterpieces studied in-depth is Theodor Storm's charming idyl *Immensee* of the type known in German as the "frame" story with reminiscence and reverie constituting the story proper.

Oral Communications . . . . . This one-semester course is designed as a basic skills course for students who wish to become more proficient public speakers. Most of the course deals with researching, organizing, and delivering persuasive speeches to an audience. Various forms of persuasion are discussed, as well as oral interpretation of prose and poetry.

Writing Seminar . . . . . This course is designed to examine techniques and concepts of writing beyond those of the expository writing course. Sentence structure, mechanics, and organization will be reviewed. Types of writing which are covered include term definition process description, reports and analysis, argument and persuasion and criticism of society and literature. A research paper as a final project is optional.

MATHEMATICS

Algebra . . . . . Elemtary algebra is the study of equations and formulas. Fundamental rules of mathematics are used to modify equations so that they can be applied to a variety of scientific, mechanical, economical, and practical problems. An effort is made to recognize patterns in given situations that may be transformed into concise mathematical statements and solved accordingly.

Advanced Algebra . . . . .This two-semester course is similar to Advanced Algebra w/Trigonometry, without the Trigonometry, and the topics of Algebra are considered at a slower pace. Elementary algebra is a prerequisite consideration.

Advanced Algebra w/Trigonometry . . . . . This two semester course is a continuation of elementary algebra. Topics include the number systems of equations, relations and functions, including algebraic, trigonometric, exponential, and logarithmic, complex numbers, and sequences and series. Elementary algebra is a prerequisite consideration.

Advanced Mathematics . . . . . A continuation of Advanced Algebra w/Trigonometry emphasizing more the abstract or general forms as compared to the more direct forms of previous courses. This course is intended to provide a fourth year of mathematics in high school for students pursuing advanced training in science or mathematics. Advanced Algebra w/Trigonometry is a prerequisite consideration.

Computer Literacy . . . . . This one-semester course provides the students with enough information about the ways computers work to allow them to understand what computers can and cannot do. The development, symbolism, and logic of the computer are considered as part of the course. An exposure to flow charting, program writing and machine operations are considered. The students get first hand experience on hardware equipment.

Computer Programming I . . . . .This one-semester Computer Programming course is intended for those students interested in computer programming and data processing. Fundamentals of basic programming language are developed along with computer applications to problem solving and simulation experiences. Course work includes "hands on" experience with a computer. The topics and problems considered are primarily mathematically oriented. Therefore, it is a prerequisite consideration that students enrolling in this course be better than average in mathematics or be highly motivated.

MUSIC

Concert Band I . . . . . Membership in this group is determined by the director through auditions, tryouts and interviews.

Mixed Chorus . . . . . Membership in this group is determined by the director in charge through interviews, tryouts and auditions.

Music Theory I . . . . .This is a general music theory and appreciation course for pupils interested in pursuing music study beyond the performing group media. The course offers opportunity for individual effort.

Music Theory II . . . . . This course is a continuation of Music Theory I with advanced materials for students interested in pursuing further studies in music.

Orchestra . . . . . The orchestra is a full concert group which takes part in many varied and important school programs. Advanced pupils selected from the orchestra usually make up the string ensembles that are the active performing groups both in and out of school.

NATURAL SCIENCE

Biology . . . . . This is a two-semester course dealing with the study of living things. Topics usually covered include heredity, life chemistry, structure and function in animals and plants, microbiology, ecology, reproduction and development, and classification. This is a laboratory course in which the students are actively involved in collecting data, analyzing results, and drawing conclusions.

Advanced Biology . . . . . This is a two-semester course in which the activities include performing, analyzing, and researching several series of detailed biological investigations. Each student designs and performs an investigation and explains it to the class in a seminar type situation.

Chemistry . . . . . This is a two-semester course dealing with the study of matter and the changes it undergoes. Topics usually covered include atomic theory, chemical bonding, reaction kinetics, chemical applications, and classification of matter. This is a laboratory course in which the student is involved in applying the processes of observation and interpreting data.

Advanced Chemistry . . . . . This is a two-semester course in which the students spend equal amounts of time on laboratory investigations in the fields of organic chemistry and qualitative analysis. Students will also spend time on problem reviewing and learning about the new methods available in present day research while working on a project in an area of their own choosing.

Environmental Science . . . . . This one-semester course deals with topics designed to create an environmental awareness in the student. Topics usually covered include ecology, air quality, water quality, noise pollution, sight pollution, populations, energy, solid waste management, land use, and recreation. This is a laboratory oriented field course, with appropriate field trips and outside speakers from selected fields.

Physical Geography. . . . . . This one-semester course is designed to develop an awareness of man's physical environment. The climate, land forms, vegetation, soil, rocks and minerals constitute this environment. The environment is studied through audio-visual materials, field trips, map reading, rock and mineral identifications.

Physics . . . . . Physics is the study of matter and energy and their interrelationships. Topics covered include motion, astronomy, mechanics, light, electromagnetism, and atomic structure. This is a laboratory course in which students collect and analyze data.

SOCIAL SCIENCE

Child Development . . . . . This is a one-semester course involving the study of children from the pre-natal period to adolescence. Major emphasis is placed on the preschool years, ages 1 to 5. This course provides a source of valuable information and experience for the student who plans a career involving children.

Economics . . . . . The study of economics is made necessary by the problem of scarcity, which is created by the effort to satisfy man's unlimited wants with limited resources. This one-semester course is designed to introduce the student to the basic economic systems which man has devised to try and solve the problems caused by scarcity. Particular attention will be given to the American economic system and its relation to the world economy as we attempt to solve that problem of scarcity in this society. Finally, the students will survey such current economic problems as inflation, unemployment, and fuel rationing, which are threatening the stability of the American economy.

Psychology . . . . . This is a one-semester course which deals in the understanding of human behavior. Areas investigated are many: personality development, learning theory, group behavior, and mental illness. The course is designed to study how human beings develop and react to their environment from birth to adulthood, thus, it is a study of normal behavior. The area of abnormal behavior is covered through investigating case studies. The purpose of the course is to have the students become more aware of themselves and others through taking part in classroom activities and studying human behavior.

Sociology . . . . . This is a one-semester course designed to analyze institutions and social problems in contemporary societies essentially concerntrating on American Society. It investigates the roles people play in the various institutions including the family, the community and educational systems. Furthermore, social problems such as mental illness, alcoholism, poverty, and crime will be researched to determine their causes and effects on society. The aim of the course is to analyze man's role in a changing industrial society and concentrate not only on the present but also on the future.

APPENDIX II

BASIC COURSE COMPETENCIES

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BASIC COURSE COMPETENCIES

The following section contains the specific competencies for some of the basic curriculum courses in the Health Career programs at the Milwaukee Area Technical College. These competencies, in the estimation of the writers, are representative of the competencies in the basic curriculum courses at other Wisconsin colleges and universities. It is the responsibility of each student to investigate the policy regarding the CLEP examination at the school of their choice, and to then prepare themselves academically for the specific competencies of the basic courses at that school according to the institutional policy as it regards the CLEP examination for advanced placement and standing.

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DENTAL LABORATORY TECHNOLOGY 105--SCIENCE FOR THE DENTAL TECHNICIAN

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify some basic concepts of chemistry and physics relating to matter, energy and measurement.
2. To differentiate the general properties of matter and describe the states of matter.
3. To describe the historical development of the atomic concept.
4. To compare atoms, molecules, ions, and elements and recognize the difference between compounds and mixtures.
5. To name the parts of an atom and outline the basic points of the modern theory of atomic structure.
6. To relate the chemical properties of the atom to its electron structure and valence.
7. To describe the nature and behavior of chemical bonds.
8. To review the organization of the periodic table and be able to use the table to obtain information.
9. To name, write, and interpret correctly chemical formulas and equations.
10. To list the main points of the ionization theory.
11. To compare the properties of acids, bases, and salts.
12. To compare the general types of chemical reactions and define the factors that govern chemical reactions.
13. To compare and contrast the chemical and physical properties of some common metals and non-metals used in dental technology.
14. To describe the structure of carbon and relate its properties to the valence and electron structure.
15. To identify some common chemical reactions of carbon.
16. To compare the properties and structures of a number of organic compounds used in dental materials.
17. To contrast heat and temperature.
18. To read and compare temperature scales used in dental technology.
19. To describe the energy changes of a substance relative to its physical state and molecular structure.

20. To describe the operational principles of simple machines.

21. To contrast kinetic and potential energy.

22. To define force, work and power.

23. To identify and relate terms used in describing motion.

24. To compare Newton's laws of motion.

25. To differentiate between types of motion.

26. To compare and apply the principles of motion to dental laboratory equipment.

27. To describe electromotive force and relate it to potential, resistance, and current.

28. To compare the elements of a simple series and parallel electric circuit.

29. To use Ohm's law to solve simple electrical problems.

30. To describe how a simple electric motor operates.

31. To explain simple electrolysis and the principles of electroplating.

32. To compare electrical power and energy.

33. To define the general properties required of dental materials.

34. To compare the different forms of gypsum products.

35. To contrast their physical and chemical properties and their uses.

36. To outline the characteristics and properties of hydrocolloids, zinceugenol paste, and rubber materials.

37. To explain the process of polymerization.

38. To identify the waxes used as dental materials.

39. To define the chemical properties and structures of dental waxes.

40. To name the types of synthetic resins used as dental materials.

41. To describe the chemical formulation and synthesis of resins.

42. To compare the dental metals.

43. To contrast the general properties of dental metals, alloys, and amalgams.

44. To compare and describe the chemical action of corrosion and tarnish on dental metals.

45. To describe the scientific principles of soldering and welding.

46. To list methods and principles of the heat treatment of dental materials.

47. To compare the properties of cutting, abrasion, and polishing materials used in dental technology.

48. To identify the material used as dental porcelains, cements, and refractory materials.

49. To specify the common chemical properties of dental porcelains, cements, and refractory materials.

ENGLISH 151--COMMUNICATION SKILLS 1

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To define the goals and objectives of the course from the syllabus.

2. To differentiate between the four communication skills of writing, reading, listening, and speaking.

3. To analyze the word as a symbol, i.e., denotation, connotation, concrete and abstract.

4. To interpret a college-level dictionary entry.

5. To recognize basic grammatical units.

6. To eliminate common sentence errors.

7. To demonstrate appropriate levels of usage.

8. To perform the planning stages:

    a. to determine the purpose;
    b. to select and restrict the subject;
    c. to determine the controlling idea;
    d. to gather materials for the controlling idea.

9. To formulate a well-constructed topic sentence and/or thesis statement.

10. To organize supporting material.

11. To write a clear, coherent, unified paragraph and/or essay.

12. To develop reading techniques, e.g., skimming, scanning and vocabulary skills.

13. To achieve the highest possible comprehension at a reading rate appropriate to the material.

14. To increase attention.

15. To analyze the message.

16. To evaluate the message.

17. To prepare the short talk:

    a. to determine the purpose of the talk;
    b. to select and narrow the topic;
    c. to analyze the audience and occasion;
    d. to gather the material;
    e. to outline the ideas;
    f. to practice the delivery.

18. To deliver the short talk, including an introduction, body and conclusion.

19. To evaluate the short talk by using oral and written critiques.

20. To analyze one form of literature chosen from either the short story or the drama.

21. To analyze one form of mass media chosen from either the newspaper or the magazine.

ENGLISH 152--COMMUNICATION SKILLS 2

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To re-emphasize the interrelationship of writing, reading, speaking and listening.
2. To demonstrate abilities in these four communication skills.
3. To distinguish between informal and formal correspondence.
4. To write a business letter, particularly a letter of application.
5. To identify the functions of report writing in business and industry.
6. To write a vocationally oriented report.
7. To use library and community resources.
8. To gain proficiency in documentation.
9. To present research in written, oral, or audiovisual form.
10. To analyze group discussion as a part of the democratic process.
11. To classify the different types of group discussion: interview, conference, lecture-forum, panel, and symposium.
12. To participate in informative and problem-solving discussion:

    a. to function as a discussion leader;
    b. to function as a discussion participant.

13. To differentiate between inductive and deductive reasoning.
14. To identify logical and emotional appeals, fallacious reasoning, and propaganda.
15. To organize and present persuasive communication: oral and/or written.
16. To analyze one form of literature chosen from either the novel or poetry.
17. To analyze one form of mass media chosen from either television or the film media.

ENGLISH 201--ENGLISH 1

CLEP evaluation at MATC to be based on student's accomplishment of the following competencies. Students will be expected:

1. To emphasize need for preliminary thinking.
    a. To choose topics of manageable size.
    b. To determine a general purpose and construct a tentative thesis.
2. To establish credible persona.
    a. To recognize that role-playing does not diminish personal integrity and competence.
    b. To recognize the distinction between pandering to an audience's basic weaknesses and appealing to its legitimate interests and concerns.
3. To acquire a reasonably good grasp of the fundamentals.
    a. To arrange ideas in a logical structure.
    b. To overcome persistent grammatical problems.
4. To recognize the essentials of unity, coherence, order and completeness.
5. To recognize the variety and appropriateness of different patterns in supporting a thesis.
6. To describe the varieties(explanatory, persuasive, narrative, descriptive) of paragraphs and the rhetorical functions of those varieties.
7. To develop flexibility in composing paragraphs which are complete, coherent, unified, and properly related to the stated or implied topic sentence or dominant impression.
8. To recognize the principles of grammatically structured sentences.
9. To develop sentence structures that reflect clarity, economy, and variety.
10. To describe the scope of semantics and apply its principles.
11. To analyze the relationships which exist between symbols, their referents, and the effect of those symbols on those who use them.
12. To recognize doublespeak and to distinguish between communication and pseudo-communication, especially scrutinizing the language of politicians and advertisers.
13. To describe the three divisions of persuasion: argument, emotional appeal, and reliability.

14. To describe deductive and inductive reasoning in the development of a proposition.

15. To apply the general principles of logic.

16. To write paragraphs and essays that are effective and creative as well as mechanically accurate.

17. To use specialized rhetorical techniques, resulting in effective prose.

18. To analyze both student and professional writings to discover elements of effective style.

19. To study effective writing models.

    a. To determine author's purpose and to evaluate basic assumptions.
    b. To note relationship of specific details to general ideas and to draw valid inferences.
    c. To judge the writer's interpretation of facts.

20. To develop critical thinking.

21. To arouse interest in other areas of human experience.

    a. To acquire factual information.
    b. To expand vocabulary.
    c. To identify character traits.

ENGLISH 202--ENGLISH 2

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To analyze, interpret, judge, and discuss literary works with greater expertise and acumen.
2. To develop a mature, intelligent approach to literature, through knowledge of perspectives.
3. To write about literature read so that understanding and appreciation are clearly and fully formulated.
4. To read critically and objectively and thus arrive at more sophisticated literary judgments and discernments.
5. To express these with greater ease, clarity, and authority
6. To identify the elements and technical aspects which serve to distinguish the genre of the short story.
7. To acquire techniques of reading the story so that reading will be more perceptive and profitable.
8. To demonstrate understanding and appreciation of the novel, or of longer fiction, as a genre.
9. To read the novel as a medium or vehicle of expressing values and insights not usually available in shorter works.
10. To describe how the successful dramatist effectively combines powers of words, fiction, and dramatic techniques.
11. To recognize distinct groups within the genre.
12. To describe major techniques used in the play and drama.
    a. To analyze group-controlled behavior.
    b. To describe the conventions of the theater.
13. To recognize the common features of drama as presented on stage, screen, radio, and television.
14. To define and illustrate the nature of poetry by clarifying the nature of the poetic experience.
15. To identify those elements in poetry and its use of language that distinguish it from prose, particulary in regard to such matters as imagery, metaphor, rhythm, and tone.

16. To acquire the techniques of reading poetry so that both understanding and enjoyment are heightened.
17. To choose a workable subject and to restrict and refine it in terms of matter and purpose.
18. To use resources effectively.
19. To prepare a bibliography.
20. To organize, document, and write the final paper.

MATH 130--COLLEGE ALGEBRA AND TRIGONOMETRY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify sets and give illustrations of sets, both finite and infinite.
2. To represent a set.
3. To identify members or elements of sets.
4. To identify subsets and proper subsets of sets and the null set.
5. To use the symbols: $\cup, \cap, \subseteq, \nsubseteq, \subset, \not\subset, \nsupseteq, \supseteq, \supset, \not\supset, \in, \notin, \emptyset$
6. To find the number of subsets in a set of n elements.
7. To define one-to-one correspondence.
8. To identify and illustrate equal sets, equivalent sets.
9. To identify a constant in a set; a variable in a set.
10. To list the elements in the union of two or more sets; the intersection of two or more sets.
11. To identify disjoint sets; the complement of a set.
12. To illustrate by the use of a Venn Diagram:
    a. the fact that one set is a proper subset.
    b. the fact that $A \subseteq B$.
    c. the area included in the union of two or more sets; the intersection of two or more sets; the complement of a set.
    d. the area included in $(A \cup B) \cup C'$, $(A \cup B) \cap C$, $(A \cap B) \cup C$, etc., where A, B, and C are sets.
13. To define and locate on the real number line all real numbers: natural, integral, rational, irrational.
14. To define an imaginary number: a complex number.
15. To identify and use the equivalence postulates and the field properties.
16. To identify and use addition and multiplication on axioms.
17. To identify items "3" and "4" in the proof of a theorem and to develop a simple proof.
18. To define the absolute value of a number.
19. To define and graph open and closed intervals on the number line.
20. To define and use the order properties of real numbers.

21. To define monomial, binomial, trinomial, and polynomial.

22. To define coefficient, term, and factor.

23. To add, subtract, multiply, and divide polynomials.

24. To use the special products $a(x + y - z)$ $(x - y) \cdot (x + y)$, $(x + y)^2$, $(x - y)^2$ and $(x \pm y)^3$ variations involving the above.

25. To find the prime factors of polynomials of the form: $ax + ay$, $x^2 - y^2$, $x^2 + 2xy \pm y^2$, $x^3 \pm y^3$, etc.

26. To factor polynomials by completing the square.

27. To factor polynomials by grouping.

28. To define and illustrate a rational expression.

29. To simplify a rational expression.

30. To add, subtract, multiply, and divide rational expressions.

31. To simplify complex fractions.

32. To define and illustrate an exponent.

33. To evaluate algebraic expressions having integral exponents.

34. To define rational exponents.

35. To state and use the laws of exponents, i.e.; $x^a \cdot x^b = x^{a+b}$, $(x^a)^b = x^{ab}$, etc.

36. To reduce algebraic expressions containing rational exponents to simplest form.

37. To define radicals, i.e.; $\sqrt[n]{a^m = \frac{m}{a^n}}$

38. To change from radical form to exponential form and vice versa.

39. To rationalize the numerator or denominator of radicals in fractional form.

40. To use rules for addition, subtraction, multiplication, and division of radicals.

41. To know the fact that $\sqrt{x^2} = |x|$

42. To write a number in scientific notation.

43. To distinguish between a conditional equation and an identity.

44. To define the root, zero or solution of a conditional equation.

45. To define equivalent equations and equivalent inequalities.

46. To identify and use the theorems concerning operations which result in equivalent equations and equivalent inequalities, i.e., solve simple linear equations and inequalities.

47. To solve quadratic equations in one variable by factoring, completing the square and the quadratic formula.

48. To solve equations in one variable which appear in quadratic form and may involve extraneous roots.

49. To solve equations involving radicals.

50. To solve verbal problems.

51. To perform formula rearrangements.

52. To solve rational and quadratic inequalities.

53. To solve simple equations and inequalities that involve absolute values.

54. To solve by eliminating one variable by addition or subtraction, or by substitution.

55. To define consistent and dependent equations.

56. To solve graphically.

57. To define and evaluate determinants of the second, third and fourth orders.

58. To solve a system of equations using determinants, i.e., Cramer's Rule.

59. To identify and define relations and functions, domain and range.

60. To locate ordered pairs as co-ordinates of a point in the Cartesian coordinate system.

61. To evaluate functions.

62. To graph simple functions of first, second, and higher degrees.

63. To graph an inequality in one or two variables.

64. To analyze and graph the equations for the conic sections.

65. To graph the solution set for rational inequalities, and quadratic inequalities.

66. To use linear interpolation to evaluate logarithms not directly found in a logarithm table.

67. To know and use the laws of logarithms.

68. To use logarithms to find products, quotients, powers and roots.

69. To solve exponential and logarithmic equations.

70. To define and use the arc-length or circular function to find coordinates of points on the unit circle.

71. To use the arc-length function in defining the sine, cosine, and tangent functions.

72. To define the cotangent, secant and cosecant functions.

73. To develop and know the fundamental trigonometric identities.

74. To evaluate the trig functions given radian measures and conversely.

75. To graph the six trig functions using a table of values.

76. To convert radians to degrees and conversely.

77. To evaluate the six trig functions given degrees and conversely.

78. To define the six trig functions in terms of the parts of a right triangle.

79. To simplify trig expressions using the basic trig identities.

80. To find all the solutions to a trig equation.

81. To develop and use the addition formulas, half-angle formulas, and double-angle formulas.

82. To define amplitude, cycle, harmonic, period and phase shift for the trig functions.

83. To use the items in Number 4 to graph the trig functions.

84. To define the inverse trig functions.

85. To evaluate and graph the inverse trig functions.

86. To state and use the Law of Sines and the Law of Cosines.

87. To use trigonometry to solve the parts of a right triangle.

88. To find the area of a triangle using trigonometry to solve word problems.

89. To use trigonometry to solve word problems.

90. To define "i".

91. To simplify i^n, n a positive integer.

92. To define the complex number in the form a + bi and its conjugate.

93. To add, subtract, multiply and divide complex numbers.

94. To define the absolute value (modulus) and argument of a complex number.

MATH 131--ANALYTIC GEOMETRY AND CALCULUS 1

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To distinguish between rational and irrational numbers.

2. To state and apply each of the following laws and properties.

    a. The commutative laws
    b. The associative laws
    c. The distributive law
    d. The property of the additive identity
    e. The property of the multiplicative identity
    f. The property of the additive inverses
    g. The property of multiplicative inverses

3. To define the order relations:

    a. less than
    b. greater than
    c. less than or equal to
    d. greater than or equal to

4. To apply the addition and multiplication properties of the above order relations to the solutions of inequalities, some of which involve absolute values and radicals.

5. To distinguish between open intervals, closed intervals, and half-open intervals and to give examples of these intervals in Euclidean one space.

6. To define the absolute value function.

7. To apply the triangle inequality and the multiplication and division properties of the absolute value function in solving equations and inequalities which involve this function.

8. To construct the rectangular Cartesian plane and to plot points in this plane.

9. To distinguish between directed and undirected distances between two points in this plane.

10. To find the directed distance from one point to another in this plane if the points have the same abscissa or ordinate.

11. To find the undirected distance between any two points in this plane.

12. To define and determine:

    a. the coordinates of the midpoint of a given line segment.
    b. the slope of a given straight line
    c. the inclination of a given straight line

13. To state and apply the relationship between the slope of a line and its inclination.

14. To state and apply the relationship between:

    a. the slopes of parallel lines, and
    b. the slopes of perpendicular lines if these slopes exist.

15. To prove some theorems from synthetic geometry by the methods of analytic geometry.

16. To state and apply the Fundamental Theorem of Analytic Geometry.

17. To recognize the equation of a straight line.

18. To determine the equation of a straight line from given constraints which determine it, and to draw its graph.

19. To explain the concepts of families of lines and how this concept is used in solving systems of linear equations in two variables.

20. To find the angle between two given lines.

21. To define a circle.

22. To write the center-radius and general second degree equation of a circle, and to sketch the graph of the circle from its equation.

23. To define a parabola, write the general form of its equation if its axis is parallel to one of the coordinate axis.

24. To write the equation of a parabola given a set of constraints which determine it.

25. To draw the graph of a parabola.

26. To apply this material to the solution of problems.

27. To explain and use the concept of translation of axis to simplify second degree equations.

28. To define a function of a single variable; to define the domain and range of a function of a single variable.

29. To determine the domain and range of simple algebraic functions.

30. To recognize different algebraic functions from their definitions.

31. To apply the operations of finite addition, subtraction, multiplication, and division on the constant and identity functions in order to obtain other functions.

32. To form composite functions from given functions and further, to determine the domain and range of such new functions.

33. To write the definition of an even or an odd function and to apply

this definition to determine whether a function is even or odd or neither.

34. To use the even and odd function concept in drawing a sketch of the graph of certain algebraic functions.

35. To survey a few special functions, e.g., step functions.

36. To sketch the graph of a relation whose equation may be written as the product of two or more relations equal to zero.

37. To determine the points of intersection of two curves from their equations.

38. To state the ϵ - δ definition of the limit function and to interpret this definition geometrically.

39. To prove that a number is the limit of certain algebraic functions directly from this definition.

40. To state theorems on limits of functions and to apply these theorems in determining the limit of a function, if it exists.

41. To determine when a function has a limit or a one-sided limit as the variable approaches a number.

42. To state and apply definitions and theorems on limits where the limit of the function or variable is infinite, and to apply the theorems in order to find such limits.

43. To define and determine the equation of horizontal and vertical asymptotes of a function.

44. To state the definition of continuity of a function at a number and on an interval and also to state this definition using ϵ - δ notation.

45. To determine where a function is continuous directly from the definition.

46. To define and apply the definition of one-sided continuity.

47. To state and apply theorems on continuous functions.

48. To define, in terms of limits, the slope of the tangent line to the graph of a function of one variable at a point on the graph, and to find the equation of the line from a set of constraints which determine it.

49. To define the normal line to the graph of a function of one variable at a point on the graph and to determine its equation from a set of constraints which determine it.

50. To define instantaneous velocity of a particle moving along a straight line as well as the speed of the particle and to determine equations of motion based upon the notion of instantaneous velocity.

51. To write the definition of the derivative of a function of one

variable at a point and on an interval and to apply this definition to find the derivative of algebraic functions.

52. To interpret the definition of the derivative geometrically and physically.

53. To define one-sided derivatives and to determine them.

54. To relate differentiability and continuity.

55. To state and apply theorems on differentiation of algebraic functions.

56. To state, interpret, and apply the Chain Rule to find the derivative of a composite function.

57. To find the derivative of a power function.

58. To derive other functions from a given function by taking derivatives of any order n.

59. To find the nth derivative of a function defined implicitly.

60. To define the differential of a function at a point.

61. To find the differential of a function.

62. To distinguish between the differential and derivative geometrically.

63. To apply the notion of the differential in making approximations.

64. To state and apply differential formulas in order to determine the differential of a function.

65. To solve problems involving related rates by use of derivatives.

66. To write the definitions of absolute and relative extreme functional values.

67. To state and apply tests for absolute and relative extrema.

68. To solve physical and geometrical problems requiring an absolute extremum.

69. To state, prove, and interpret geometrically Rolle's Theorem.

70. To state, prove, and interpret geometrically the Mean Value Theorem for derivatives.

71. To find the mean value of a function.

72. To write the definition of an increasing function on an interval and a decreasing function on an interval.

73. To use the derivative to determine where a function is increasing or decreasing.

74. To state and apply tests for concavity of the graph of a function.

75. To state the definition of a point of inflection of a graph of a function and to determine such points from the definition.

76. To develop skill in drawing the sketch of a graph of a function by using notions of derivatives.

77. To define and determine an antiderivative of a function.

78. To determine the most general antiderivative of a function.

79. To understand and apply basic antidifferentiation formulas.

80. To solve simple differential equations of the first order in which the variables are separable.

81. To solve geometric and physical problems involving antiderivatives.

82. To identify sigma-notation in representing sums.

83. To identify and use certain basic properties of summations.

84. To define the definition of the area of a region as the limit of a sum.

85. To define a Riemann Sum.

86. To interpret a Riemann Sum geometrically.

87. To use a Riemann Sum in making approximations.

88. To define the definite integral as the limit of a Riemann Sum.

89. To find the definite integral directly from the definition.

90. To write and apply some important properties of the definite integral.

91. To write and interpret geometrically the Intermediate Value Theorem.

92. To prove the Mean Value Theorem for integrals.

93. To find the mean value of a function on an interval.

94. To state and prove the fundamental theorem of integral calculus.

95. To use the Fundamental Theorem of integral calculus in evaluating the definite integral.

MATH 151--TECHNICAL MATHEMATICS 1

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To locate numbers on the number line.
2. To add signed whole numbers.
3. To subtract signed whole numbers.
4. To multiply signed whole numbers.
5. To perform combined addition, subtraction, and multiplication of signed whole numbers.
6. To solve basic equations.
7. To simplify equations by combining number-terms.
8. To factor using the distributive principle.
9. To simplify equations by combining letter-terms.
10. To perform the interchange principle for equations.
11. To perform the oppositing principle for equations.
12. To perform the addition axiom for equations.
13. To solve equations with letter-terms and number-terms on both sides.
14. To perform the opposite principle of multiplication.
15. To solve equations in which one side is "0".
16. To evaluate and check equations.
17. To multiply by the distributive principle.
18. To solve equations using the distributive principle.
19. To multiply by the distributive principle when the grouping contains a subtraction.
20. To multiply two fractions.
21. To multiply a fraction by a non-fraction.
22. To reduce numerical fractions to lowest terms.
23. To reduce fractions with letters to lowest terms.
24. To multiply signed fractions.

25. To convert division to multiplication.

26. To divide fractions which involve "0".

27. To divide signed quantities.

28. To add two fractions.

29. To add a fraction and a non-fraction.

30. To convert mixed numbers to fractions and fractions to mixed numbers.

31. To add mixed numbers.

32. To add signed fractions.

33. To add signed mixed numbers.

34. To subtract fractions.

35. To subtract mixed numbers.

36. To multiply and divide mixed numbers.

37. To evaluate complex expressions which contain fractions.

38. To solve basic equations using the multiplication axiom.

39. To solve equations which contain two or more fractions whose denominators are identical.

40. To solve equations which contain two or more fractions whose denominators are different.

41. To solve equations which contain one fraction whose denominator is an instance of the distributive principle.

42. To solve complicated equations with one or more two-factor denominators.

43. To solve equations in which a complex numerator appears with another turn on one side.

44. To solve two-letter equations by use of tables.

45. To read and plot points at intersections on the coordinate system.

46. To read and plot points which are not at intersections on the coordinate system.

47. To graph two-letter equations.

48. To plot and graph curvilinear equations.

49. To graph two-variable formulas.

50. To read technical and scientific graphs.

51. To multiply literal fractions.

52. To factor literal fractions.

53. To reduce literal fractions to lowest terms.

54. To add and subtract literal fractions.

55. To reduce complicated fractions to lowest terms.

56. To simplify literal fractions whose numerator or denominator contains a fraction.

57. To identify terms in formulas.

58. To rearrange formulas with one non-fractional term on each side.

59. To rearrange formulas with one term on each side containing one fraction.

60. To rearrange formulas with one term on each side containing two fractions.

61. To rearrange formulas which contain more than one term on each side.

62. To rearrange formulas in which the same variable appears in more than one term.

63. To rearrange formulas using the addition axiom and the distributive principle.

64. To solve systems of equations by the graphing method.

65. To solve systems of equations by the equivalence method.

66. To solve applied problems which lead to systems of equations.

67. To derive formulas using the equivalence method.

68. To solve systems of equations by the substitution method.

69. To derive formulas using the substitution method.

70. To name non-whole numbers between 0 and 1.

71. To name non-whole numbers greater than 1.

72. To compare non-whole numbers.

73. To round whole numbers to the nearest ten, hundred, etc.

74. To round non-whole numbers to the nearest tenth, hundredth, etc.

75. To estimate products and quotients.

76. To estimate answers to additions and subtractions.

77. To read and set one-digit numbers on the C and D scales.

78. To read and set two-digit numbers on the C and D scales.

79. To multiply one-digit numbers on the slide rule.

80. To read and set three-digit numbers on the slide rule.

81. To multiply three-digit numbers on the slide rule.

82. To read and set a fourth digit on the C and D scales.

83. To multiply three or more numbers on the slide rule.

84. To divide on the slide rule.

85. To multiply and divide powers of ten with positive whole-number exponents.

86. To multiply and divide powers of ten with negative whole-number exponents.

87. To perform combined multiplication and division of powers of ten.

88. To multiply and divide regular numbers by using powers of ten.

89. To write regular numbers as a factor times a power of ten.

90. To write numbers in standard notation.

91. To write numbers in multiplication-form with a particular power of ten.

92. To compare numbers written in powers of ten form.

93. To estimate products using the standard notation method.

94. To multiply two or more factors on the slide rule.

95. To estimate quotients when the denominator is a number between 1 and 10.

96. To estimate quotients by using decimal point shifts.

97. To estimate quotients using powers of ten.

98. To find quotients on the slide rule.

99. To estimate answers to problems involving combined multiplication and division.

100. To find reciprocals and perform multiplication on the CI scale.

101. To square numbers on the slide rule.

102. To find the square roots of numbers on the slide rule.

103. To find square roots using the grouping method.

104. To cube numbers on the slide rule.

105. To find cube roots of numbers on the slide rule.

106. To find cube roots by the grouping method.

107. To solve proportions algebraically.

108. To solve proportions using the slide rule.

109. To solve applied problems involving ratios and proportions.

110. To solve ratio-percent equations.

111. To write any positive number between 1 and 10 in power-of-ten form.

112. To write positive numbers greater than 10 in power-of-ten form.

113. To multiply and divide by means of powers of ten and log notation.

114. To determine powers and roots by means of power of ten and log notation.

115. To write numbers between 0 and 1 in logarithmic form.

116. To convert negative logarithms to regular numbers.

117. To make calculations involving negative logarithms.

118. To determine the upper and lower limits of a measurement.

119. To determine the precision of a measurement.

120. To compute the absolute error of a measurement.

121. To add and subtract measurements.

122. To compute the relative error of measurements.

123. To determine the accuracy of measurements.

124. To compute the relative error of a measurement.

125. To multiply and divide measurements.

126. To estimate final digits when reading measurement scales.

127. To compute the areas of rectangles, squares, parallelograms, triangles, trapezoids, circles, and composite figures.

128. To compute lengths of sides of right triangles using the Pythagorean Theorem.

129. To compute volumes of geometric figures.

130. To compute surface areas of geometric figures.

131. To compute weight of objects given their volume and density.

MATH 152--TECHNICAL MATHEMATICS 2

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

BASIC TRIGONOMETRY

1. To compute the lengths of unknown sides of right triangles using the Pythagorean Theorem.
2. To define the tangent ratio.
3. To compute unknown side of a right triangle using the tangent ratio.
4. To determine an unknown angle of a right triangle using the tangent ratio.
5. To define the sine and cosine ratio.
6. To determine unknown sides and unknown angles of right triangles using the sine and cosine ratios.
7. To contrast the basic trigonometric ratios.
8. To solve applied problems.
9. To find the sine, cosine, and tangent of an angle.
10. To find an angle whose sine, cosine, or tangent is known.
11. To find a side of a right triangle using a trig ratio.
12. To find an angle of a right triangle using a trig ratio.
13. To find a side of a right triangle using the Pythagorean Theorem.
14. To specify the directions of vectors using reference angles.
15. To determine the trig ratios of reference angles.
16. To determine the horizontal and vertical components of slanted vectors.
17. To determine the length and direction of a slanted vector.
18. To add vectors by the parallelogram method.
19. To add vectors by the component method.
20. To find the length and direction of a resultant.
21. To add more than two vectors.
22. To determine a vector-addend.

23. To determine vector opposites.

24. To determine the zero-vector.

25. To determine equilibrants.

26. To determine reference angles of standard position angles between 0° and 360°.

27. To determine trigonometric ratios of angles between 90° and 360°.

28. To determine standard-position angles corresponding to known ratios.

29. To determine the trig ratios of 0°, 90°, 180°, 270°, and 360°.

30. To graph the basic cycle of the sine wave.

31. To add, by the component method, vectors whose directions are stated in terms of standard position angles.

32. To determine trig ratios of angles greater than 360°.

33. To determine trig ratios of negative angles.

34. To define a degree and radian.

35. To convert degrees to radians, and radians to degrees.

36. To express angles in terms of pi.

37. To determine trig ratios of angles expressed in radians.

38. To find the sine, cosine, and tangent of angles on the slide rule.

39. To solve oblique triangles by right-triangle methods.

40. To find unknown sides and angles of oblique triangles using the Law of Sines.

41. To find unknown sides and angles of oblique triangles using the Law of Cosines.

42. To outline strategies for solving triangles.

43. To solve applied problems using the Law of Sines or Law of Cosines.

44. To solve oblique triangles by the Law of Sines when an obtuse angle is involved.

45. To solve oblique triangles by the Law of Cosines when an obtuse angle is involved.

46. To add vectors on the coordinate system by the oblique-triangle method.

47. To solve basic problems involving chords of circles.

48. To solve applied problems involving chords of circles.

49. To solve problems involving revolutions and rotational speed.

50. To solve problems involving circumferential speed and angular velocity.

51. To find areas of triangles which involve a trigonometric solution.

52. To solve problems involving tangents and half-tangents.

53. To define the cosecant, secant, and cotangent of an angle.

54. To find the cosecant, secant, and cotangent of any angle.

55. To solve problems which involve the eight basic identities.

56. To verify identities.

57. To solve trigonometric equations.

58. To solve equations involving inverse trigonometric expressions.

59. To add or subtract angles which involve minutes and seconds.

60. To solve problems which involve similar right triangles.

61. To find sine, cosine, and tangent ratios to the nearest minute by interpolation.

62. To report angles to the nearest second by interpolation.

63. To determine decimal subdivisions of degrees.

64. To graph sine wave equations of the form: $y = A \sin \theta$.

65. To graph nonfundamental sine waves.

66. To determine by observation, the equations of fundamental sine waves.

67. To determine, by observation, the phase difference between a nonfundamental and a fundamental sine wave.

68. To determine equations of sine wave harmonics of the following forms: $y = A \sin k\theta$, $y = A \sin (k\theta + 0)$, and $Y = A \sin (k\theta - \phi)$

69. To graph harmonics of fundamental sine waves.

70. To determine, by observation, the equation of sine waves with negative amplitudes.

71. To write certain numbers in "j" notation.

72. To identify the real part and imaginary part of complex numbers.

73. To represent complex numbers on the coordinate system using vectors.

74. To add vectors by means of complex numbers.

75. To subtract vectors by means of complex numbers.

76. To convert complex numbers from rectangular form to polar form.

77. To multiply vectors in rectangular form.

78. To multiply vectors involving incomplete complex numbers.

79. To multiply vectors involving conjugates.

80. To multiply vectors in polar form.

81. To divide vectors in rectangular form.

ADVANCED ALGEBRA

82. To compute square roots of positive numbers.

83. To determine squares and square roots of letters.

84. To multiply square root radicals.

85. To multiply nonradicals and square root radicals.

86. To divide square root radicals.

87. To square letter-terms.

88. To square fractions.

89. To determine the squares of square root radicals.

90. To square terms containing square root radicals.

91. To rationalize denominators which contain square root radicals.

92. To square binomial expressions.

93. To determine the square roots of perfect square trinomials.

94. To add and subtract terms containing square root radicals.

95. To solve radical equations by direct inspection.

96. To isolate radicals in radical equations.

97. To isolate radicals and solve radical equations.

98. To isolate radicals and rearrange radical formulas.

99. To square binomials that contain a square root radical.

100. To solve equations containing a squared letter.

101. To solve radical formulas which contain squared letters.

102. To solve systems of formulas involving squared letters and square root radicals by the equivalence method.

103. To solve systems of formulas involving squared letters and square root radicals by the substitution method.

104. To multiply two binomials by means of the distributive principle.

105. To solve incomplete quadratic equations by the factoring method.

106. To solve "pure" quadratic equations by the factoring method.

107. To solve complete quadratic equations of the form $ax^2 + bx + c = 0$ by the factoring method.

108. To solve perfect-square trinomials by the factoring method.

109. To solve quadratic equations by means of the quadratic formula.

110. To multiply and divide powers with positive whole-number exponents.

111. To convert divisions of powers to multiplications.

112. To convert multiplications of powers to divisions.

113. To add and subtract letter-terms which contain powers.

114. To simplify radicals by factoring out perfect squares.

115. To raise radicals to powers.

116. To identify linear equations in "x" and "y."

117. To graph linear equations by plotting intercepts.

118. To express the slope of a line as a signed number.

119. To express the slope of a line as a ratio of various pairs of changes in "x" and "y."

120. To write linear equations in slope-intercept form.

121. To determine the slope of a line through two known points.

122. To determine the equation of a line through two known points.

123. To determine the equations of lines through the origin.

124. To determine the equations of horizontal and vertical lines.

125. To identify linear equations with variables other than "x" and "y."

126. To estimate the equations of graphical lines.
127. To express numbers greater than 1 in power-of-ten form.
128. To determine common logarithms of numbers greater than 1.
129. To express numbers between 0 and 1 in power-of-ten form.
130. To determine common logarithms of numbers 0 and 1.
131. To evaluate "log" formulas for "non-solved for" variables.
132. To evaluate "log" formulas for "solved-for" variables.
133. To evaluate "lot" formulas when a conversion to power-of-ten form is required.
134. To find common logarithms on the slide rule.
135. To evaluate forms which contain "e."
136. To evaluate "ln" formulas.
137. To evaluate "ln" formulas when a conversion to power-of-"e" form is required.
138. To evaluate "e" formulas when a conversion to "ln" notation is required.
139. To graph exponential equations in "x" and "y."
140. To rearrange "log" formulas without using the laws of logarithms.
141. To rearrange "log" formulas using the laws of logarithms.
142. To express "log" formulas as base-10 exponential formulas.
143. To rearrange "ln" formulas.
144. To express "ln" formulas as base-"e" exponential formulas.
145. To rearrange base-"e" exponential equations.

MATH 160--BASIC STATISTICS

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To review the type of mathematics encountered in the course.
2. To summarize a collected set of data into a frequency table, or frequency distribution.
3. To represent data graphically by means of histograms, frequency polygons, etc.
4. To perform arithmetical operations on the data to obtain values for one or more descriptive measures such as mean, mode, median, and standard deviation.
5. To use elementary probability theory in the theory and applications of statistics.
6. To know the theoretical frequency distributions such as normal and binomial curves, which provide a basis for calculating theoretical frequencies or probabilities for the random variables.
7. To know the meaning of sampling distributions and their significance, and to understand one of the most important theorems; namely, the central limit theorem.
8. To know the underlying principles regarding the problems of estimating parameters or moments of the population distribution.
9. To be able to make point and interval estimations for the means and variance.
10. To determine confidence intervals for the population mean and the proportion.
11. To test a statistical hypothesis by comparing theoretical results with those obtained by experimentation or by sampling.
12. To know the method of making statistical inferences about two independent samples, and to learn how to test the hypothesis that the difference between the two means or proportions is equal.
13. To use the theory of Chi-square distribution.
14. To use linear regression analysis, and the method of least square estimates of parameters.
15. To know the fundamental principles of analysis of variance which provides a method of comparing the means of several populations corresponding to responses to several treatments.

MATH 201--COLLEGE ALGEBRA

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify sets and give illustrations of sets, both finite and infinite.

2. To represent a set.

3. To identify members or elements of sets.

4. To identify subsets and proper subsets of sets and the null set.

5. To use the symbols: $\cup$, $\cap$, $\subseteq$, $\nsubseteq$, $\subset$, $\not\subset$, $\supseteq$, $\nsupseteq$, $\supset$, $\not\supset$, $\in$, $\notin$, $\emptyset$.

6. To find the number of subsets in a set of n elements.

7. To define 1-1 correspondence.

8. To identify and illustrate equal sets; equivalent sets.

9. To identify a constant in a set; a variable in a set.

10. To list the elements in the union of two or more sets; the intersection of two or more sets.

11. To identify disjoint sets; the complement of a set.

12. To illustrate by the use of a Venn Diagram:

    a. The fact that one set is a proper subset of another set.
    b. The fact that $A \subseteq B$.
    c. The area included in the union of two or more sets; the intersection of two or more sets; the complement of a set.
    d. Such areas as $(A \cup B) \cap C$, $(A \cap B) \cap C'$, $(A \cap B) \cup C$. etc., ~~and~~ when A, B and C are sets.

13. To define and locate on the real number line all real numbers: natural, integral, rational, irrational.

14. To define a so-called imaginary number.

15. To define a complex number.

16. To identify and use the equivalence postulates and the field properties and be able to identify them in proofs of theorems.

17. To identify and use addition and multiplication axioms.

18. To define monomial, binomial, trinomial, polynomial.

19. To add, subtract, multiply, and divide polynomials.

20. To use the special products $a(x + y - z)$, $(x - y)(x + y)$,

$(x + y)^2$, $(x - y)^2$.

21. To find the prime factors of polynomials of the form $ax + ay$, $x^2 - y^2$, $x^2 \pm 2xy + y^2$, $x^3 \pm y^3$, etc.

22. To factor polynomials in which it is necessary to complete the square.

23. To factor polynomials by grouping.

24. To define and illustrate a rational expression.

25. To simplify a rational expression.

26. To add, subtract, multiply, and divide rational expressions.

27. To simplify complex fractions.

28. To define and illustrate an exponent.

29. To evaluate numbers and terms having integral exponents.

30. To define rational exponents.

31. To use the laws of exponents.

32. To reduce algebraic expressions containing rational exponents to simplest form.

33. To define radicals.

34. To use rules for addition, subtraction, multiplication, and division of radicals.

35. To change from radical form to exponent form and vice versa.

36. To rationalize the numerator or denominator of radicals in fractional form.

37. To distinguish between a conditional equation and an identity.

38. To define a root or solution of a conditional equation.

39. To define equivalent equations and equivalent inequalities.

40. To identify and use the theorems concerning operations which result in equivalent equations and equivalent inequalities, i.e., solve simple linear equations and inequalities.

41. To solve quadratic equations and equations in quadratic form by factoring, completing the square, or using the quadratic formula.

42. To solve equations involving radicals.

43. To solve verbal problems.

44. To solve rational and quadratic inequalities.

45. To solve simple equations and inequalities that involve absolute values.

46. To perform formula rearrangements.

47. To solve by eliminating one variable by addition or subtraction, or by substitution.

48. To solve a system of linear equations graphically and define consistent and dependent equations.

49. To define and evaluate determinants of the second, third, and fourth orders.

50. To solve systems of linear equations by determinants.

51. To identify and define relations and functions and domain and range.

52. To locate ordered pairs as coordinates of a point in the Cartesian coordinate system.

53. To graph simple functions of first and second degree by construction of a table of values.

54. To evaluate functions using functional notation.

55. To graph an inequality in one variable.

56. To graph the solution set of an equation or an inequality that involves absolute value.

57. To graph the parabola, circle, hyperbola, and ellipse.

58. To solve algebraically and graphically a system of equations for two variables containing at least one second degree equation.

59. To define "i".

60. To simplify i^n, n a positive integer.

61. To define the complex number in the form a + bi and its conjugate.

62. To add, subtract, multiply, and divide complex numbers.

63. To solve quadratic equations whose solution sets are complex numbers.

64. To divide P(x) by (x - a) using synthetic division.

65. To apply the remainder theorem and the factor theorem.

66. To analyze and graph a polynomial function.

67. To use the Fundamental Theorem of Algebra.

68. To determine and illustrate the slope of a line.

69. To find the equation of the line that passes through two given points.

70. To find the equation of the line that passes through a given point having a given slope.

71. To graph linear equations by slope intercept form.

72. To find the distance between two points using the distance formula.

MEDICAL ASSISTANT 150--MICROBIOLOGY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To relate the field of microbiology to the other sciences, especially to the related health sciences.
2. To discuss the historical background and some of the important leaders who contributed to the advances in microbiology.
3. To use and care for some of the important instruments used in microbiology, especially the compound microscope.
4. To discuss the metric system and relate ways in which it pertains to microbiology.
5. To recognize the basic classification of microorganisms important in medical microbiology.
6. To describe the general characteristics of the important groups of microorganisms.
7. To list some of the specific identifying characteristics of common pathogens and of some of the common nonpathogens in each of the microbial groups.
8. To describe the pathogenesis which results from some of the specific organisms.
9. To identify forms of treatment and prophylaxis which can be used to minimize the harm caused by the pathogens.
10. To identify the basic requirements of microbial growth.
11. To perform a Gram stain and to discuss some other staining procedures and their importance in bacterial identification.
12. To describe various culture techniques used to study and identify microbes.
13. To discuss the importance of microbial control.
14. To describe how some of the physical and chemical agents are used in controlling microbial growth.
15. To relate the basic principles of control to the maintenance of good health.
16. To identify the role of microbes in disease conditions.
17. To describe how microbes which cause disease enter and leave the body.
18. To describe how the body defends itself against microbes.

19. To discuss the importance of immunity in maintaining good health.

20. To identify the role microbiology plays in control of:

    a. food sanitation
    b. water sanitation
    c. milk sanitation
    d. environmental sanitation.

21. To discuss how public health can be promoted on the local, state and national levels.

LABORATORY UNITS

1. To identify the important parts of the microscope and to explain how they function.

2. To properly use and care for the microscope.

3. To observe some of the basic culture vessels.

4. To use some of the basic culture media to grow organisms.

5. To recognize evidences of microbial growth in either liquid or solid media.

6. To study some characteristics of the organisms which have been cultured.

7. To perfom a Gram stain.

8. To identify other techniques used to stain microbes.

9. To identify and enumerate organisms in a variety of environments.

10. To use mechanical, physical and chemical means to control microbial growth.

11. To illustrate antigen-antibody reactions by using the blood typing procedure.

12. To observe the various types of blood cells with the microscope.

13. To draw some representative pathogenic and non-pathogenic protozoans and to answer some questions about them.

14. To draw and answer questions about some of the worms which cause disease.

15. To draw and identify the characteristics of some of the arthopods which can infest man and/or be vectors of human disease.

16. To draw some representative yeasts and molds and answer some questions about them.

17. To describe the characteristics of some representative spherical bacteria and of some of the diseases they cause.

18. To describe the characteristics of some representative rod-shaped bacteria and of some of the diseases they cause.

19. To describe the characteristics of some representative spiral bacteria and of some of the diseases they cause.

20. To describe some of the characteristics of the acid-fast organisms; of the rickettsia; and of the viruses, and to relate them to the diseases they cause.

NATURAL SCIENCE 101--BIOMEDICAL SCIENCE 1

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected to:

1. Identify the basic units of the metric system used to measure length, volume, mass, and temperature.
2. Measure accurately, using the units of the metric system.
3. Convert measurements of one unit to another within the metric system.
4. Compare Fahrenheit and Celsius scales.
5. Identify taxonomic groupings used to help identify the relationships which exist among organisms.
6. Describe the distinguishing features of the plant, animal, and protist kingdoms.
7. Identify phyla from the kingdoms that contain pathogenic organisms and give examples of each.
8. Identify the properties of light which apply to microscopy.
9. Name the parts of the microscope and give their functions.
10. Prepare slides by a variety of techniques and discuss the value of each.
11. Compare/contrast plant and animal cells.
12. Name and state the functions of organelles of a typical cell.
13. Compare/contrast procaryotic and eucaryotic cell types.
14. List the chemical constituents of living things.
15. List and define the cellular processes fundamental to life.
16. Compare/contrast the various forms of trans-location.
17. Discuss the purpose of mitosis and meiosis.
18. By diagrams, indicate how mitosis and meiosis achieve their separate purposes.
19. Describe the processes of gametogenesis and fertilization and their significance.
20. Identify the stages of embryology.
21. Describe the formation and function of the embryonic membranes.
22. List the germ layers and examples of tissues developed from each.

23. Identify main tissue types from slides and drawings.

24. List the structural characteristics, functions, and locations of various tissues.

25. State relationship of cells, tissues, and organs.

26. Describe the functional anatomy of skin, relating it to embryonic origin and tissue relationships.

27. Correctly use terminology of anatomical direction, planes of section, and topographical regions and features of the body.

28. Define the limits of the body cavaties and state the organs found in each.

29. List the basic nutrients required in a growth medium.

30. Distinguish between various types of media and how they are to be used.

31. Identify and use properly aseptic techniques in handling cultures.

32. Classify microbes on the basis of their method of obtaining food.

33. Define terms relating to environmental factors for bacterial growth.

34. Prepare bacterial cultures.

35. Identify the three basic morphological shapes of bacteria and arrangements possible for each.

36. Identify special morphological features of bacteria.

37. Prepare gram stains of selected cultures of bacteria.

38. List the functions of the skeletal system.

39. Name the separate bones of the body and their significant features.

40. Describe the general structure of bone.

41. Outline the stages of both endochondral and intramembranous ossification.

42. Relate abnormalities of bone growth and maintenance to both the endocrine system and nutrition.

43. List the characteristics of the three major types of joints and give examples.

44. Describe the various types of movements possible at a diarthrotic joint.

45. From models and drawings, name the major muscles of the body and give their main actions.

46. Outline the major classes of levers and state the principles of force which apply to each.

47. Knowing the attachments of muscles, predict the type of action expected at a given joint.

48. Apply principles of force to body mechanics.

49. Classify various means of controlling the growth of microorganisms.

50. Identify specific physical agents, chemical agents, and chemotherapeutic means used to control and destroy microorganisms.

51. Differentiate between matter and energy.

52. Classify the basic types of energy and show how they can be interconverted.

53. Explain the role of energy in changes associated with matter.

54. Identify the structural organization of the atom.

55. Relate electron structure within the atom to the nature of bonds formed between atoms.

56. Use valence to determine a chemical formula.

57. Compare/contrast types of bond formations.

58. Describe the nature of radioactive emissions and ways of protecting against hazards of radiation.

59. List common types of chemical reactions and give examples.

60. Indicate the factors that alter or determine reaction rates.

61. Use symbols to write and balance equations.

62. Identify physical and chemical properties of oxygen, hydrogen, and carbon dioxide.

63. List the common physical and chemical properties of water.

64. Use the polar description of water to account for its properties.

65. Contrast hydrogen bonding with ionic and covalent bonding.

66. Differentiate between a strong and weak electrolyte.

67. State common rules of solubility.

68. Differentiate between saturated, unsaturated, supersaturated, concentrated, and dilute solutions.

69. Define and prepare solutions of percentage, molarity, normality, and milliequivalence.

70. List and explain the factors that affect the preparation of solutions.

71. Compare/contrast the properties of true solutions, colloidal dispersions, and suspensions.

72. Given solutions of specified concentration, predict their relative effects on osmotic and dialysis systems.

73. Define, classify, and identify the source of acids, bases, and salts.

74. Predict the following types of reactions:

    a. acid + base
    b. acid + carbonate
    c. acid + active metals
    d. strong acid + salt of a weak acid
    e. strong base + acid salts
    f. salt + active metal
    g. salt + water

75. Explain the basis for predicting the pH of a substance.

76. Predict the reactions occurring during buffering.

77. Identify systems that will serve as effective buffers.

78. Differentiate between whole blood, blood plasma, and blood serum.

79. Describe the chemical components of blood plasma.

80. List the main groups of plasma proteins and state their functions.

81. Outline the correct sequence of steps in blood clotting.

82. List the cellular components of blood and state the functions of each.

83. State normal blood cell counts and identify abnormalities/disease associated with abnormal counts.

84. Identify sites of production of blood cells and important developmental stages.

85. Identify blood cells using charts, drawings, models, and microscope slides.

86. Describe the basic mechanism of antigen-antibody reactions.

87. List the possible genotypes for each blood type of the ABO series.

88. Show how antisera can be used to identify blood types.

89. Explain the development of allergies.

90. List the various host/microbial relationships.

91. List the factors which can shift the balance in favor of disease.

92. Identify both specific and non-specific mechanisms of host defense.

93. Identify the morphological characteristics of important metazoan groups.

94. Identify various pathological organisms of these groups.

95. Outline the life cycle and identify those organisms which serve as vectors of important diseases.

96. Identify the major classes of protozoans and give their characteristics.

97. Identify various pathogenic organisms of these classes.

98. Outline the life cycle of these important protozoans.

NATURAL SCIENCE 102--BIOMEDICAL SCIENCE 2

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected to:

1. List the chemical properties and unique characteristics of carbon.

2. Outline the field of organic chemistry and define the groups within it.

3. Give structural and empirical formulas for named organic compounds.

4. Properly name organic compounds using the IUPAC and common naming systems.

5. Predict typical and significant reactions for the hydrocarbons and functional groups.

6. Summarize the stepwise oxidation and reduction of organic compounds.

7. For each of the three groups:

    a. State the characteristics which define the group.
    b. Outline the classification within each group.
    c. List and state the function of important examples from each group.
    d. State the general metabolic functions of each group.
    e. List important physical and chemical characteristics of each group.

8. Define enzymes and vitamins and state their relationship.

9. List and explain the mechanisms whereby environmental factors affect enzyme action.

10. Given the na[illegible] of an enzyme, state the chemical activity expected.

11. Account for the specificity of enzymes.

12. Classify vitamins on the basis of their solubility and state their physiological effects.

13. Prepare from memory a flow chart of the main steps in the metabolism of glucose in oxygen sufficiency and oxygen debt.

14. Identify the point of entry of non-glucose materials into the scheme of glucose metabolism.

15. State and explain the significance of the rules governing the replication of nucleic acid molecules.

16. Outline the steps in protein synthesis beginning with the inherited genetic code.

17. State the waste products formed from the metabolism of proteins, fats, carbohydrates, and nitrogen bases.

18. Compare/contrast the various procaryotes on the basis of morphology, physiology, and relationship to disease.

19. List the special morphological and physiological characteristics of bacteria which assist in classification and explanation of disease.

20. Identify by common names the major groups of bacteria and the families which make up these groups.

21. Compare/contrast viruses to living things.

22. State the basis for and classify viruses.

23. For each of the systems:

    a. Identify the gross and semi-micro anatomical features.
    b. Outline the tissue types and relationships.
    c. Trace the blood supply and drainage.
    d. Indicate the autonomic supply and state the effects seen.
    e. List the hormones that effect each and indicate their functions and mechanism of control.
    f. Explain the normal functioning of each organ.
    g. Indicate special structural considerations of each organ that enable it to function normally.
    h. Identify microorganisms, both pathogens and non-pathogens, seen in each system and explain how they affect normal functioning.
    i. Outline procedures designed to prevent infection by pathogenic organisms.

24. Apply the principles of chemistry and physiology to selected problems of fluid and electrolyte balance.

NATURAL SCIENCE 103--ANATOMY AND PHYSIOLOGY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To describe a few outstanding anatomists and physiologists and their major contribution to this field.

2. To specify some of the subdivisions of biology and how they relate to anatomy and physiology.

3. To identify and use basic terminology as it applies to structures in anatomy.

4. To identify the structural features on the surface of the human body.

5. To name and identify the body cavities of the mammals and their basic content.

6. To name the ten major systems of the body and to describe their basic functions.

7. To name the phylum, subphylum class, and genus species to which man belongs.

8. To differentiate the eight basic organelles and describe their functions. (See model of cell).

9. To describe the five phases of mitosis.

10. To describe and compare mitosis and meiosis.(See model of mitosis and meiosis)

11. To compare the six basic methods of translocation of materials in the body.

12. To differentiate growth and reproduction.

13. To describe homeostasis and/or metabolism.

14. To differentiate the various types of tissues and identify the morphological types from diagrams and models.

15. To name and describe some basic terminology in embryology.

16. To list the basic functions of the various tissue.

17. To name and describe the layers, appendages, and functions of the skin.(see model of the skin)

18. To list the parts of the periosteum, bone matrix, and bone marrow. (Microscopic)

19. To name the various structures of the skull, vertebra, and appendages and identify them on the bones. (See Laboratory Outline) Gross.

20. To outline the basic five functions of bone as follows:

    a. To describe intra-membranous ossification and endochondral ossification.
    b. To specify the normal location in the adult of red and yellow bone marrow.
    c. To compare compact and cancellous bone and discuss their location.
    d. To differentiate circumferential and linear growth in bones.
    e. To list major hormones, vitamins, and minerals that have an effect on skeletal growth and discuss how they stimulate or depress growth.

21. To list the three major types of joints.

    a. To list the characteristics of a synarthrosis and list kinds andexamples.
    b. To list the characteristics of a diarthrosis and list kinds and examples.
    c. To list the characteristics of an amphirathrosis and list kinds and examples.(See models)

22. To describe the basic anatomy of a neuron(microscopic).(Models)

23. To describe the basic anatomy of a nerve and tract(Microscopic). (Models)

24. To describe white and gray matter and compare location (Microscopic). (Models)

25. To differentiate between C.N.S. and P.N.S. both gross, microscopic and physiologically.

26. To identify and name the major structures on the brain and spinal cord models, and describe their functions. (See: laboratory outline).

27. To name the crainial nerves and list their functions.

28. To identify and name the spinal nerves on the models and describe their functions.

29. To identify and name the structures on the eye and ear models and describe their functions. (See: laboratory outline)

30. To dissect a sheep eye.(See: laboratory outline)

31. To compare a simple reflex arc and a simple autonomic reflex.

32. To select the correct function of various portions of the C.N.S. and P.N.S from a list of responses.

33. To identify and name the meninges and outline the origin of the cerebro-spinal fluid and its function.

34. To describe the origin of the nervous system and the origin and fate of the five embryonic portions of the brain. (See: laboratory outline)

35. To list the cavities of the brain and spinal cord and describe the subdural and subarachnoid spaces and how they relate to the cerebro-spinal fluid. (Models and Charts.)

36. To identify some of the anomalies of the nervous system, eye and ear and list some corrective measures.

37. To list and compare the microscopic characteristics of skeletal, cardiac, and smooth muscles. (Models)

38. To identify and name some of the major muscles on a dissected cat. Compare the human muscles and outline the basic functions of these muscles. (See: laboratory outline)

39. To list the various types of contraction-tone, tetanus, isometrics, and isotonics and differentiate what occurs.

40. To outline the basic chemical changes that occur during contraction and relaxation of skeletal muscles.

41. To list the innervation necessary to initiate and carry out normal muscular movements--cerebral cortex, hypothalamus, cerebellum and inner ear, spinal cord, sensory neurons, motor neurons, healthy muscles, and a healthy outlook on life.

42. To list, describe, and locate the structures of the respiratory system on the models (See: laboratory outline.)

43. To outline the pleura, mediastinum, thorax, innervation, and pulmonary circulation.

44. To differentiate between external, internal and true respiration.

45. To compare changes during inspiration and expiration.

46. To contrast the difference between intra-pulmonary and intra-pleural pressure and describe its significances in breathing.

47. To describe the capacity of the lungs and factors that affect the capacity of the lungs.

48. To describe the basic methods of transport of gases by the compartments of the blood.

49. To compare the pressure gradients of CO_2 and O_2 and how they relate to the exchange in the lung and in the cell.

50. To list some factors that relate to the rate and depth of respiration.

51. To list and describe the various types of anoxia and what basically causes them.

52. To match some general facts about respiration from list of responses.

53. To identify and name the digestive organs and hepatic portal system on the cat, and to compare the structures of the cat with those of the human. (See: laboratory outline)

54. To identify and name the parts of the hepatic portal system, lymphatic system, and innervation of the digestive system.

55. To differentiate carbohydrates, lipids, proteins, vitamins, and minerals and describe the basic functions of these substances in digestion and metabolism.

56. To list and describe six basic hormones of digestion and their functions.

57. To list and describe thirteen basic enzymes of digestion and their functions.

58. To outline the basic functions of the mouth, stomach, small intestine, large intestine, liver, gallbladder, and pancreas in digestion and/or metabolism.

59. To list and describe the major structures of the heart and find them on the sheep heart.

60. To outline the electro-conducting system and specify its function in the cardiac cycle.

61. To list the extrinsic innervation of the heart and describe its effect on the cardiac cycle.

62. To list and describe the major arteries and veins of the cat and find them on the cat specimen. (See: laboratory outline)

63. To describe blood pressure in arteries, veins and capillaries and differentiate the factors that normally control blood pressure.

64. To outline the basic course of the lymphatic system and describe its function.

65. To discuss the origin of tissue fluid and its basic function in circulation.

66. To list the origin, characteristics, and general life cycle of erythrocytes and relate the significance of minerals and vitamins to normal production of erythrocytes.

67. To list the origin, charcteristics, and life cycle of thrombocytes and discuss their role in clotting of blood. Also to outline other factors from plasma and vitamins that play a significant role in the clotting of blood. (See models of blood and slides--identify structures)

68. To list the origin, characteristics and life cycle of thrombocytes and discuss their role in clotting of blood. Also to outline other factors from plasma and vitamins that play a significant role in the clotting of blood. (See models of blood and slides--identify structures)

69. To name the four basic blood types and be alerted to the fact that research is ever broadening our knowledge of this subject.

70. To outline the fetal circulation and maternal circulation. Describe and differentiate the portions of blood exchanged between the fetus and the mother. (See: laboratory outline)

71. To compare adult and fetal circulation at birth, specifying the changes that normally result, and to list and identify the structures on the fetal pig.

72. To list some of the common anomalies that develop in the circulatory system. (See: Laboratory outline for general information.)

73. To list and describe the four excretory routes and their excretory products.

74. To list the four major organs of the urinary system and describe their basic functions.

75. To list the basic parts of the nephron and describe the basic functions of the nephron. (See: Models of urinary system, gross and microscopic; identify parts and their function.)

76. To list the hormones that help regulate the urinary system.

77. To describe threshold and non-threshold substances and how they relate to osmotic and hydrostatic pressure of the blood. (See: Laboratory outline for general information)

78. To list and differentiate the major hormones from the commonly defined endocrine organs.

79. To contract and compare the "normal" and classical anomalies of the endocrine malfunctions. (See: Laboratory outline for general information.)

80. To list and describe the basic functions of the various parts of the female and male reproductive system.

81. To differentiate between oogenesis and spermatogenesis.

82. To compare the relationships of various hormones to the normal cycles of the female.

83. To describe structural and functional changes in the female that result from pregnancy. (See: The laboratory outline for general information.)

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NATURAL SCIENCE 109--MICROBIOLOGY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify some of the leaders and their contributions to the science of microbiology.
2. To define technical terms used in microbiology.
3. To relate the importance to microbiology to health and disease.
4. To identify the general morphology and physiological characteristics of microorganisms.
5. To acquire skill and knowledge in the use and care of the microscope and laboratory tools.
6. To apply some of the basic techniques used in the laboratory.
7. To relate how microorganisms are transmitted.
8. To relate how microorganisms are controlled and destroyed.
9. To specify the role of the normal resident population of the body.
10. To specify the role of the body in building up resistance to foreign invasions.
11. To specify the role of immunization in maintaining health and preventing disease.
12. To outline the morphology and physiology of animal and plant cells.
13. To identify the common nonpathogenic and pathogenic microorganisms.
14. To outline the importance of certain growth characteristics and special structures of the pathogens.
15. To identify etiological agents of specific infections and contagious diseases.
16. To identify the pathogensis of certain microorganisms.
17. To outline the patterns of resistance established by various pathogens.
18. To describe certain tests used in the diagnosis and treatment of diseases.

19. To apply preventive and prophylactic measures used to control diseases.

20. To identify the role of toxins in health and disease.

21. To outline the pathological significance of toxin-producing microorganisms, insects, and animals.

22. To apply preventive and prophylactic techniques used to treat specific poisons.

23. To outline the role of microbiology in maintaining health.

24. To outline the role of microbiology in controlling specific factors important to health:

    a. Milk
    b. Water
    c. Food
    d. Sewage
    e. Environmental Sanitation

25. To identify principles and techniques used to study the fluids and secretions of the body.

26. To identify the role of microbiology in the collecting, preserving, storing, and transporting of specimens for clinical examination.

27. To become current in the data of microbiology and the related sciences.

28. To relate the importance of new concepts in the control of disease.

29. To relate the importance of space organisms in the life of the earth man.

NATURAL SCIENCE 111--CHEMISTRY 1

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify the fundamental types of measurements utilized by chemists.
2. To identify the units of measure, both English and metric, associated with each type of measurement.
3. To convert measurements from English to metric and metric to English.
4. To provide answers to problems involving measurements to the proper number of significant digits.
5. To identify the chemical symbols for 53 selected elements.
6. To describe the characteristics which differentiate elements, compounds, and mixtures.
7. To describe the significance of "The Law of Conservation of Matter and Energy", "The Law of Definite Composition", and "The Law of Multiple Proportions."
8. To convert between Celsius and Fahrenheit, Fahrenheit and Celsius, Celsius and Kelvin, and Kelvin and Celsius temperatures.
9. To identify the fundamental particles of the atom and their relative charge, mass and location in the atom.
10. To describe some of the classic experiments which substantiate the accepted theory of the atom.
11. To describe the meaning of the following terms: atomic number, mass number, isotope, ionization potential.
12. To describe the construction of the periodic chart from the concept of atomic numbers, groups and periods.
13. To relate the behavior of atoms to their position in the periodic chart.
14. To write the probable electron configurations of elements when given their atomic numbers.
15. To differentiate the relationship between electron configuration and chemical properties.
16. To interpret the meaning of a set of quantum numbers assigned to an electron and to give the electron configuration of an atom in terms of quantum numbers.
17. To describe on an elementary level the formation of the ionic or covalent chemical bonds.

18. To describe the characteristics of atomic structure which favor the formation of either ionic or covalent bonds between combining atoms.

19. To outline current theory concerning polarities of bonds as determined by the eletronegativities of bonding atoms.

20. To describe how shapes of molecules affect polarity of molecules and therefore chemical properties.

21. To write Lewis electron-dot formulas for elements and compounds.

22. To describe the concept of coordinate covalent and hydrogen bonds.

23. To describe the resonance hybrid theory.

24. To explain the meaning of sigma and pi bonds.

25. To calculate formula masses from chemical formulas and mass numbers.

26. To calculate the mass of one mole of an element, ion, or compound from its "formula".

27. To calculate the number of moles in a given mass of a chemical species and to calculate the mass corresponding to a given number.

28. To solve problems designed to interrelate mass numbers, formula weights, Avogadro's number, and the mole.

29. To describe the qualitative and quantitative meaning of the chemical formula.

30. To state common oxidation numbers of a provided list of common simple and poly-atomic ions and to write chemical formulas using these numbers.

31. To describe the basic conventions of chemical nomenclature and to apply these in naming simple binary and ternary compounds.

32. To identify the types of chemical changes or reactions.

33. To write and balance molecular and ionic equations by the inspection method.

34. To calculate the percent composition of a compound from its formula.

35. To calculate empirical and molecular formulas from percent composition and molecular mass data.

36. To solve mass-mass problems.

37. To describe the meaning of heat of reaction and the sign convention associated with ΔH.

38. To define electrolysis, electrolyte, nonelectrolyte, and strong and weak electrolytes.

39. To identify selected compounds as being electrolytes or nonelectrolytes.

40. To describe the basic concept of ionization, reversible reactions, and chemical equilibrium.

41. To identify the Bronsted-Lowry and Lewis concepts of acids and bases.

42. To define equivalent weight.

43. To solve equivalent weight problems.

44. To define combustion, catalysts, hydrogenation, oxidation, reduction, bleaching, oxidizing agent, reducing agent, bleaching agent, and allotropes.

45. To describe the reactions between oxygen and metals, nonmetals, and organic compounds.

46. To describe the reactions between hydrogen and metals and nonmetals.

47. To describe the reactions between water and metallic and nonmetallic oxides.

48. To explain the activity series.

49. To predict chemical reactions on the basis of the activity series.

50. To define critical pressure and critical temperature.

51. To describe, in terms of Kinetic Molecular Theory, Boyle's Law, Charles' Law, Gay-Lussac's Law,Dalton's Law and Graham's Law.

52. To solve numerical problems involving Boyle's Law, Charles' Law, Gay-Lussac's Law, general(combined) Gas Law, water vapor correction, formula weights of gases by the mole method, Ideal Gas Law, Graham's Law, and Dalton's Law.

53. To solve numerical problems involving the density and specific gravity of gases.

54. To solve mass-volume and volume-volume problems.

55. To identify the individual particles present in liquids.

56. To define vapor, vaporization, vapor pressure, boiling point, normal boiling point, solution, solute, and solvent.

57. To explain the concepts of soluble, insoluble, saturated, unsaturated and super-saturated.

58. To identify the types of solutions.

59. To explain why substances dissolve.

60. To describe the following methods of expressing concentration: percent by weight, percent by volume, molarity, molality and normality.

61. To solve problems involving percent by weight, percent by volume, molarity, molality and normality.

62. To solve problems involving equivalents, percent of samples, dilution, mole fraction, colligative properties and osmotic pressure.

63. To explain the concept of detergency.

64. To characterize the solid state.

65. To list and define the individual particles present in solids.

66. To list and explain the types of crystals and the type of bonding in crystals.

67. To define isomorphous, polymorphous, amorphous, melting point, molar heat capacity, and heat of fusion.

68. To solve problems involving the Bragg equation.

69. To designate the particle size of colloids.

70. To list the types of colloidal systems.

71. To describe the formation of colloidal systems.

72. To state the properties of colloidal systems.

73. To explain the concept of dialysis and gel formation.

NATURAL SCIENCE 112--CHEMISTRY 2

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To use the metric system.
2. To use exponential notation and significant figures.
3. To write equations.
4. To use the quantum theory to obtain electron configuration.
5. To relate reaction mechanism and reaction rate.
6. To determine the type of chemical reaction
7. To determine the order of a chemical reaction.
8. To describe the characteristics of a reaction at equilibrium.
9. To describe the effect of temperature, concentration and pressure on equilibrium.
10. To write the mass action expression for equilibrium equations.
11. To determine the concentration of and reactants of a reaction at equilibrium by solving problems.
12. To identify the conditions that tend to drive a reaction to completion.
13. To describe the process of dissociation of weak acids and bases.
14. To determine K_i of weak acids and bases.
15. To solve problems involving use of K_i.
16. To explain the leveling effect of water.
17. To calculate the ion product for water (K_w).
18. To use K_w to obtain $[H+]$, $[OH^-]$, and pH.
19. To describe the process of hydrolysis.
20. To measure the effect of a common ion on the equilibrium of a reaction.
21. To make use of buffers and indicators.
22. To calulate Ksp.
23. To make use of Ksp to determine if precipitation will occur.
24. To identify the types of radioactivity.

25. To write nuclear reactions.

26. To calculate energy formed from conversion of mass.

27. To calculate half-life for a first order reaction.

28. To describe fission and fusion.

29. To explain the applications of radioactivity to research.

30. To describe the origin, measurement, calculation, and theoretical and practical significance of the energy absorbed or liberated in chemical reactions.

31. To calculate standard enthalpies of reactions, bond energy, enthalpies or ionizations and electron affinity and crystal energies.

32. To correlate thermochemical reactions using the Born-Harber cycle.

33. To make use of the concept of entropy.

34. To relate enthalpy and entropy to the concept of free energy.

35. To relate free energy to equilibrium constant.

36. To calculate ΔG for some simple reactions taking place.

37. To relate spectroscopy of structure of molecules.

38. To describe structure of molecular, ionic and metallic substances.

39. To identify the units of electrical measurement used in electrochemistry.

40. To describe how, in electrolysis, electrical energy is used to produce chemical change.

41. To be able to balance oxidation-reduction equations and write half reactions at electrodes.

42. To use Faraday's Laws.

43. To relate positions of elements in the periodic table to properties, structure, and behavior.

44. To describe the qualitative analysis of the groups.

45. To show relationship between electron structure and properties of the transition elements.

46. To explain formation of coordination compounds in terms of the Lewis acid-base theory.

47. To name and write formulas for coordination compunds.

48. To give coordination numbers and shapes of complexes.

49. To describe use of chelation.

50. To describe the structure of and name simple hydrocarbons.

51. To draw isomer.

52. To identify and name functional groups.

53. To identify the most common types of organic reactions.

54. To write equations for characteristic reactions of functional groups.

55. To discuss recent advances in the synthesis of new organic compounds.

56. To apply principles of molecular composition, reaction energy, and molecular structures to biochemical substances.

NATURAL SCIENCE 121--PHYSICS 1

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To list the objectives of the course.

2. To identify requirements of the course relating to:

    a. textbook assignments
    b. problem assignments
    c. tests

3. To describe responsibilities pertaining to:

    a. time limit on assignments and reports
    b. minimum requirements
    c. specific nature of problems,work and form of reports.

4. To identify the systems of measurement in terms of basic form and functional requirement.
    a. Metric, with background
    b. English with modern industrial application
    c. Modern measurement
        (1) Cosmic
        (2) Atomic
        (3) Industrial

5. To review the manner in which science relates to both previous and subsequent courses in the technologies in terms of:

    a. dependence upon mathematics
    b. supporting other courses in technology

6. To list and describe the method of organization for laboratory work, particularly the:

    a. schedule of laboratory experiments
    b. location of apparatus and equipment
    c. general method for laboratory work
    d. group responsibilities

7. To list standards for laboratory reports concerning:

    a. diagrams and sketches
    b. graphs
    c. calculations and mathematical procedures

8. To demonstrate perceptual acuity through:

    a. analyzing a given situation for the basic principles involved
    b. rating in the order of importance the factors and conditions in a situation
    c. applying these to practical situations encountered in the technological field

9. To specify the field of vectors through a:

    a. study of the characteristics of those quantities usually represented by vectors
    b. review of graphical methods

10. To describe vector components and composition in terms of:

    a. the specifications of components
    b. types and kinds of components
    c. methods of dealing with specific components

11. To prove the resolution of vectors through:

    a. reviewing the characteristics of the resultant
    b. equating a resultant in terms of components and vice versa

12. To differentiate various methods employed, namely:

    a. graphical method
    b. analytical methods
        (1) summation of components
        (2) trigonmetric

13. To convert a system of forces into a vector diagram by:

    a. reviewing the selection and use of scales
    b. studying methods of handling vectors acting at the same time in comparison with those acting in succession.
    c. checking results

14. To review the position of statics in the overall curriculum.

15. To describe the conditions of equilibrium and relate these to vectors with emphasis upon:

    a. the conversion of systems of forces into corresponding vector diagrams
    b. the application of the principle of transmissibility

16. To investigate friction as an equilibrium force.

17. To set up and describe a system of forces including how to:

    a. designate the resultant and the equilibrant
    b. set up methods for analytical determination
    c. demonstrate synthesis of force systems into equational form for general problem solution.

18. To solve for the coefficient of friction.

19. To identify the statics of structure and specialized equipment.

20. To review the position of dynamics in relation to the technologies.

21. To describe the systems of units used, namely:

    a. C-g-s
    b. English or engineering
    c. M-K-S

22. To list the specifications of Newton's second law.

23. To select the denominations of units used in applying the law.

24. To recite Newton's law of universal gravitation and its application to spatial problems.

25. To use Newton's second law in situations involving forces through synthesis and development of general equations.

26. To identify inertia as a property of a body and relate it to mass.

27. To list and describe the conditions of rotational equilibrium including the:

    a. principle of moments
    b. characteristics of moments
    c. specifications of parallel force
    d. measurement of lever arms

28. To list and describe the application of the principle of moments to members of structures.

29. To determine the center of gravity of a series of forces and the reaction at the supports of parallel forces.

30. To differentiate "internal" and "external" moments in members of a structure.

31. To list and identify the characteristics of motion with emphasis upon:

    a. displacement
    b. time rate of displacement
        (1) average velocity
        (2) instantaneous velocity
    c. time rate of velocity change
        (1) average acceleration
        (2) instantaneous acceleration

32. To derive and apply formulas relating to the characteristics of motion.

33. To analyze and synthesize equations dealing with the characteristics of motion.

34. To set up and operate equipment for measuring and determining accurately all characteristics of motion, including how to:

    a. calibrate timing unit

    b. specify displacement
    c. determine velocities and acceleration
    d. graph motion, extrapolate, and compare with standard values

35. To review the application of modern methods of timing and measurement and apply them.

36. To investigate the physical concept of work including:

    a. specifications of forces, directions, and distances
    b. denominations and systems of units
    c. the positive, negative and vector character of work and energy

37. To describe energy in the various forms in which it manifested.

38. To identify the principle of the conservation of energy including:

    a. the transformation of energy from one kind to another
    b. useful energy and "lost" energy in heat

39. To specify power as the time rate of doing work including:

    a. denominations and units in the systems
    b. conversion factors

40. To describe simple machines on the basis of the principle of work.

41. To identify theoretical mechanical advantage of simple machines.

42. To relate the effect of friction to the characteristics of machines.

43. To list the application of the principle of virtual work.

44. To investigate the characteristics of motion.

45. To review the characteristics of forces on bodies in motion.

46. To describe the physical aspects of momentum with emphasis upon:

    a. the character of transmission of momentum
        (1) impulse
        (2) impact
    b. velocity of the mass center
    c. the effect of restitution
    d. units and denominations

47. To set up and use the ballistic pendulum for measuring the momentum of a body in order to determine its initial velocity.

48. To identify the principles of jet propulsion.

49. To review rectilinear motion and synthesize linear concepts and circular motion.

50. To list the denominations and measurements of circular motion including:

    a. comparison of formulas with those of rectilinear motion

51. To identify centrifugal action including:

    a. vector determination
    b. component method
    c. formulas
    d. denominations

52. To set up and measure controlled centrifugal action.

53. To specify modern applications of centrifugal action as illustrated by:

    a. centrifuge type apparatus
    b. banking on curves of highways
    c. orbiting of satellites
    d. centrifugal castings

54. To define gyroscopic action analytically.

55. To review the historical background of hydraulics.

56. To review the properties of fluids.

57. To define the terminology and denominations used.

58. To identify Pascal's law and its applications.

59. To identify Archimedes' law and its applications.

60. To describe the properties of liquids manifesting the phenomena of:

    a. surface tension
    b. capillarity
    c. viscosity

61. To set up equipment for measurement of density and specific gravity.

62. To measure surface tension of a liquid and compare to standard values.

63. To identify Bernoulli's theorem and its application in fields of technology.

64. To describe the elastic properties of materials including:

    a. units and denominations
    b. ranges and limits
    c. measurement and determination
    d. applications

65. To investigate analytically strengths of materials with emphasis upon:

    a. ultimate strength

b. working strength
c. safe strength

66. To set up equipment and conduct tests for the principle elastic properties.

67. To list and describe modern methods for measuring strain of members including:

    a. strain gauge
    b. photoelastic methods

68. To review the equations of motion with emphasis on the synthesis of these concepts and those of harmonic motion.

69. To identify the characteristics of oscillatory or periodic motion such as:

    a. amplitude
    b. displacement
    c. frequency
    d. period

70. To relate equations governing harmonic motion to:

    a. comparison to graphs of motion
    b. measurement and direction
    c. form of angular measure
    d. maximum and minimum values

71. To identify the characteristics of specific types of harmonic motion as illustrated by:

    a. simple pendulum
    b. compound pendulum
    c. spring oscillation
    d. electronic oscillation

72. To set up and measure characteristics of compound and torsion pendulum and check the determinations.

73. To describe the principles of vibration in terms of length, speed, weight, and tension of the vibrating body.

74. To describe heat and its characteristics as a form of energy with respect to:

    a. quantity of heat
    b. intensity of heat.

75. To identify heat capacity or specific heat.

76. To list methods of calorimetry including:

    a. heat of combustion
    b. temperature and heat of fusion
    c. temperature and heat of vaporization

77. To measure specific heat and heats of vaporization and fusion of materials.

78. To identify the economy aspects of various fuels for home heating purposes.

79. To review temperature ranges in the technologies and their industrial counterparts.

80. To identify methods of thermometry.

81. To describe expansion of materials due to temperature increase as classified:

    a. linear
    b. volumetric

82. To set up equipment for the experimental determination of the coefficient of expansion.

83. To measure temperatures with the optical pyrometer.

84. To describe temperatures encountered in industry and research.

85. To identify change of phase at:

    a. the melting point
    b. the freezing point

86. To define in a test situation
    a. the triple point
    b. the critical point

87. To identify and discuss salient features of the P-V-T surface.

38. To describe the theoretical aspects of heat transfer as classified according to:

    a. conduction
    b. convection
    c. radiation

89. To recite the formulas, with tabular constants, for calculating heat transfer.

90. To set up equipment and measure heat conduction as based on Netwon's law of cooling.

91. To identify the practical aspects of heat transfer.

92. To relate heat to work theoretically.

93. To describe the application of the first law of thermodynamics.

94. To measure the mechanical equivalent of heat.

95. To define the limits of efficiency in heat conversion to work as applied to:

    a. Carnot's cycle
    b. Rankine's cycle
    c. Diesel cycle
    d. Otto cycle

96. To relate the conditions of the second law to the reversed cycle.

97. To relate the various affects of the sun on weather.

98. To define fog, dew, clouds.

99. To explain the weather map.

100. To define, identify and discuss the:

    a. Cyclone
    b. Anticyclone
    c. Tornado

NATURAL SCIENCE 122--PHYSICS 2

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To describe, explain, or recognize correct explanations or descriptions of currently accepted concepts and models of electric charge and atomic structure.
2. To describe and explain manifestations of the electrical property known as "induction".
3. To explain and describe, perhaps with appropriate diagrammatic constructions, the operations and applications of various "electroscopes".
4. To describe and explain, perhaps with appropriate models, the electrical properties of materials known as "conductors, insulators, semiconductors, and dielectrics".
5. To explain and describe appropriately Coulomb's Law regarding forces which exist between charges utilizing acceptable models.
6. To explain and describe appropriately the concept of "electric field" again utilizing acceptable models.
7. To explain correctly the concept and model of "field by synthesizing" and deriving an expression showing upon what its intensity depends.
8. To explain and describe appropriately the concept of "field" with models known as "lines of force" and "Gauss' Law and their applications."
9. To describe and explain the effect of charging various configurations and conducting material by constructing appropriate models, couching such explanations in terms of the concept of "field".
10. To explain and describe approximately the Millikan Oil Drop Experiment and its general historical and practical impact utilizing acceptable models for "nature's" basic unit of charge.
11. To describe and explain appropriately the concepts of "potential" and "potential differences", especially in terms of energy and work.
12. To describe and explain appropriately the concept of "potential energy related to a charged sphere" with judicious utilization of acceptable models.
13. To describe and explain the concept of the "potential

energy at a point in space", utilizing applicable models.

14. To describe and explain appropriately the practical electrical properties of and potential energy of charged plates utilizing acceptable models.

15. To explain with appropriate applications the "units of potential" and practical facility in application.

16. To identify, list, describe, compare, and contrast various sources of potential.

17. To explain appropriately the concept of electric current and circuits through citation and comparison of examples, and production and utilization of acceptable models.

18. To explain appropriately how current depends upon potential differences and how both are manifestations of the fundamental coulombic phenomena: through citation and comparison of examples, and production and utilization of acceptable models.

19. To explain, specify, and differentiate appropriately the manner in which the fundamentally mechanical concepts of force and energy are applied in the phenomenon of charges in and after motion: through construction, comparison, and employment of pertinent and acceptable models.

20. To explain appropriately the mechanical concept of power and its peculiar application in electricity; how voltage, energy, and power are dissipated in electrical circuits; the role of resistance through acceptable selection of sample applications, construction and comparison of standard or unique models.

21. To identify, describe, compare, contrast, and differentiate between series and parallel circuits through construction and operation of acceptable models; and to perform equivalent resistance calculation through invocation and operation of appropriate models.

22. To explain the direction of an electrical current through acceptable identification of example situations, and construction of historically conventional and contemporary realistic models.

23. To outline Kirchoff's circuit rules and apply them to simple circuit configurations.

24. To identify and account for the sources or cause of resistance in simple electrolytic cells and to distinguish between "battery 'emf'" and "terminal 'emf'".

25. To identify, outline, and explain various resistance measurement methods.

26. To relate resistivity to resistance; to describe the relation and mutual dependence between resistance and resistivity; and

describe and discuss thermometer application.

27. To identify real and model Wheatstone Bridges, to specify, describe and explain circuit applications.

28. To identify, list, outline, and compare various current and voltage measurement methods.

29. To specify, identify, correlate with fundamental concepts through derivation (construction explanation; and interpretation of a mathematical model), describe, explain, and apply Ampere's (Biot's) Law for the magnitude of a magnet field.

30. To specify, identify, name, describe, compare, and explain the earth's magnetic field.

31. To specify, identify, describe, and explain magnetic induction.

32. To specify, describe, explain, interpret, and apply Faraday's Law (model) for the concept of induction.

33. To describe, explain, and produce approximate examples of the concept of energy conservation as it relates to magnetic induction and as it is modulated and manifested in Lenz's Law.

34. To name, specify, outline, describe, explain, and demonstrate the material properties and manifestations of magnetism in the effects known as permeability.

35. To name, specify, outline, describe, explain, and demonstrate the material properties and manifestations of magnetism in the effect known as hysteresis.

36. To identify, describe, and explain the phenomenon of magnetism, the notion of a magnetic pole; and compare, contrast, and differentiate among various magnetic configurations.

37. To outline, describe, and explain Coulomb's Law for Magnetism.

38. To explain acceptably the concept of a magnetic force field and its intensity through selection, construction, manipulation and application of appropriate models.

39. To specify, identify, describe, outline, and explain the interaction between magnetism and electric currents.

40. To explain descriptively and substantively the concept of electromagnetism through construction of standard models.

41. To identify, describe, explain, and apply the notion of magnetic flux and flux density.

42. To identify, describe, explain, and name the force on moving charged particles.

43. To identify, describe, name, explain, and apply the field at

the center of a coil.

44. To identify, describe, name, explain, and apply the field at the center of a solenoid.

45. To identify, describe, name, explain, and apply the field due to a long, straight current carrying wire.

46. To detail, designate and describe electrolysis.

47. To identify, formulate, interpret, explain, and apply Faraday's Law.

48. To formulate, design, classify, describe, compare, contrast, explain, and apply the electromotive series.

49. To identify, describe, detail, compare, contrast, and explain conduction in solids.

50. To specify, detail, outline, differentiate, compare, describe, and explain conduction in liquids.

51. To define, describe, illustrate, formulate, and explain conduction in gasses.

52. To contrive, substantiate, differentiate, portray, and explain primary and secondary cells.

53. To identify, describe, and explain thermoelectric and thermionic generators.

54. To indicate, classify, exhibit, specify, compare, differentiate, and explain semi-conductors.

55. To specify, describe, explain, and formulate fuel cells.

56. To identify, differentiate, explain capacitance and capacitors especially through construction of symbolic models.

57. To design, diagram, operate, describe, and explain series and parallel connections of capacitors, especially through utilization of symbolic models.

58. To specify, display, and account for capacitor energies.

59. To delimit, portray, account for and apply the time constant for discharging a capacitor.

60. To identify, analyze, formulate, and represent inductance.

61. To fashion, determine, formulate, interpret, and apply the time constant for LR circuits.

62. To designate, systematize, exhibit, and apply the phase relation in AC circuits.

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63. To identify, detail, classify, exhibit, differentiate, formulate, and apply reactance and impedance.

64. To specify, illustrate, designate, describe, explain, formulate, and apply resonance.

65. To detail, explain, and apply power and the power factor.

66. To identify reflection; formulate, interpret, and apply the law of reflection.

67. To define, compare, differentiate, depict, and apply specular and diffuse reflection.

68. To identify plane mirrors and apply optical principles to formulate and apply relations between image size by geometric construction.

69. To detail, formulate by geometric construction, interpret, and apply relations between image size and location for curved mirrors.

70. To establish and exhibit the law of reflection by the wave method:

    a. virtual images and convex mirrors
    b. the triangular prism and total internal reflection

71. To identify, describe, and exemplify refraction; to fashion, systematize, and apply the index of refraction and Snell's Law.

72. To analyze, illustrate, establish, and relate the index of refraction and the speed of light.

73. To detail, distinguish, apply and relate the index of refraction and wave length of light.

74. To identify, display, and apply the dispersion of light by a prism.

75. To identify, describe, apply, and relate total reflection and the critical angle.

76. To classify and delimit spherical lenses and to account for spherical aberrations.

77. To identify and relate the focal point and focal length of lenses.

78. To fashion, synthesize, formulate, interpret, and apply the lens maker's equation.

79. To detail, contrive, diagram and apply the graphical location of images.

80. To identify, exhibit, interpret, formulate and apply the lens equation.

81. To indicate and relate to what causes lateral magnification.

82. To detail and account for chromatic aberration.

83. To describe, explain, and formulate the eye and its functions.

84. To devise, describe, formulate and explain the microscope.

85. To develop, illustrate, classify, and use the telescope.

86. To identify, describe, formulate, illustrate and apply the spectroscope.

87. To identify, describe, explain, formulate, and apply the interferometer.

88. To explain appropriately the corpuscular theory of light.

89. To describe and explain light by the wave theory,especially noting the superposition principle.

90. To identify and formulate interference.

91. To describe and explain Young's Experiment.

92. To identify, explain, and apply the diffraction grating.

93. To detail and illustrate interference by air films.

94. To describe relativistic mass and in equational terms.

95. To describe the concept of time dilation in equational terms.

96. To describe the concept of quantum reaction in the Einstein photoelectric effect.

97. To investigate the discovery of X-ray and its relation to the quantum of energy.

98. To examine the X-ray spectrum and describe the origin through energy changes.

99. To describe atomic structure by equation.

100. To determine energy levels in the Bohr atom by use of the Balmer equation.

101. To describe wave lengths of characteristic X-ray lines of the elements through a graphic approach.

102. To examine the principle quantum numbers and thereby describe complex atoms.

103. To examine data on wave/particle theory and use proper equations to describe events.

104. To examine material, on a qualitative level, of nuclear energy.

NATURAL SCIENCE 138-- BODY STRUCTURE AND FUNCTION

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify fundamental anatomical and physiological terminology.
2. To describe the structure and function of cells, tissues, organs, and systems.
3. To differentiate the various parts and organelles of the cell and describe their functions as they contribute to the structural unit of life.
4. To identify the stages of mitosis and meiosis.
5. To identify the basic structure and function in each system of the body.
6. To differentiate the four basic tissues and to compare each tissue structure and location with its functional activity.
7. To describe how tissues are interrelated to such a degree that they form the basic anatomical structure of organs.
8. To identify the various strata of skin and how these structures relate to their functional characteristics.
9. To identify the appendages of the integumentary system.
10. To describe basic gross and microscopic features of the skeleton with emphasis on their function.
11. To differentiate between types of bone markings and describe their function.
12. To identify and locate all bones of the skeleton.
13. To differentiate between typesof joints and to describe their basic movements.
14. To differentiate the divisions of the nervous system.
15. To describe the major regions of the brain and spinal cord and to describe how they are interrelated.
16. To describe the various parts of a neuron and to differentiate between the different neurons structurally and functionally.
17. To recognize the cranial nerves by name, number, and function.
18. To identify the meninges and their function.
19. To describe the spinal nerves, plexuses, and some of the major nerves arising from the plexuses.

20. To contrast sympathetics and parasympathetics structurally and functionally.

21. To compare and contrast the structure and function of the three different muscle issue types.

22. To identify by name and location some of the major muscles and muscle groups and to describe their function.

23. To outline the basic principles of skeletal muscle contraction.

24. To list, describe, and locate the major structures of the heart on laboratory speciments.

25. To compare and contrast extrinsic and intrinsic innervation influences on heart action.

26. To list and describe the major arteries and veins of the human and locate them on laboratory specimens.

27. To contrast blood pressure in arteries, veins, and capillaries and list factors that influence blood pressure.

28. To outline the basic course of the lymphatic system and describe its function.

29. To compare and contrast the origin, characteristics, and functions of the erythrocytes, leukocytes, and thrombocytes.

30. To compare the basic blood types ABO and Rh.

31. To outline the fetal circulation and to compare it to that of the adult.

32. To list the major organs of the urinary system and to describe their basic function.

33. To identify the basic structure and function of the nephron.

34. To recognize the structure and function of the male and female reproductive organs.

35. To differentiate between oogenesis and spermatogenesis. (Review Unit 1, point 4)

36. To describe some of the hormonal influences upon the development and function of the female reproductive cycles.

37. To name and locate the classic endocrine glands.

38. To list the major hormones produced by these glands and outline their functions.

39. To describe the basic influence of feedback control mechanisms on hormonal production and maintenance of body homeostasis.

40. To identify and name major structures of the eye and to describe the function of each, using laboratory specimen.

41. To identify and name the major structures of the ear using laboratory specimen and to describe how each part functions in hearing and equilibrium.

42. To locate the structures of the respiratory system on the models and charts and to describe the function of each.

43. To differentiate between internal and external respiration and compare the changes in each phase.

44. To list some factors that regulate respiratory movements.

45. To contrast the gas transport mechanism.

46. To compare the pressure difference of CO_2 and O_2 and describe how it influences gas exchange.

47. To describe the capacity of the lungs.

48. To identify and describe the organs of the digestive system and outline their functions in digestion and/or metabolism using laboratory specimen and models.

49. To list and differentiate between the hormones and enzymes of the digestive system and describe how they function in digestion of foodstuffs.

NATURAL SCIENCE 155--CHEMICAL SCIENCE

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To define chemistry and the branches of chemistry.
2. To outline the history of chemistry.
3. To relate chemistry to life.
4. To describe the scientific method.
5. To define mass, weight, heat, temperature, calorie, kilocalorie, density, and specific gravity.
6. To identify the metric system of measurement of length, mass, and volume and to work problems associated with the system.
7. To work problems associated with the conversions between the English and metric systems of measurement of length, mass, and volume.
8. To identify the temperature scales and conversions between them.
9. To work problems associated with density and specific gravity.
10. To define and describe matter, amorphous, solid, liquid, gas, homogeneous, heterogeneous, phase, substance, mixture, properties, physical properties, chemical properties, physical changes, chemical changes, energy, potential energy, and kinetic energy.
11. To state and describe the types of energy, the Law of Conservation of Mass, and the Law of Conservation of Energy.
12. To define and describe element, atom, compound, molecule, ion, and mixture.
13. To identify the primary classification of the elements.
14. To state the Law of Definite Composition.
15. To identify the chemical symbols for 39 selected elements.
16. To identify the fundamental particles of the atom and their relative charge, mass, and location in the atom.
17. To describe some of the classic experiments which substantiate the accepted theory of the atom.
18. To describe the meaning of the following terms: atomic number, mass number, and isotope.
19. To write the probable electron configurations of elements when given their atomic numbers.

20. To identify the relationship between electron configuration and chemical properties.

21. To give the electron configuration of an atom in terms of quantum numbers.

22. To describe the construction of the periodic table from the concept of atomic numbers, groups, and periods.

23. To relate the behavior of atoms to their position in the periodic table.

24. To define ionization energy.

25. To describe on an elementary level the formation of the ionic and covalent bonds.

26. To describe the characteristics of atomic structure which favor either the formation of ionic or covalent bonds between combining atoms.

27. To describe the concept of coordinate covalent and hydrogen bonds.

28. To outline current theory concerning polarities of bonds as determined by the electro-negativities of the bonding atoms.

29. To describe and provide examples of polyatomic ions.

30. To write Lewis electron-dot formulas for elements and compounds.

31. To state common oxidation numbers of a provided list of common simple and polyatomic ions.

32. To determine the oxidation number of an atom in a given formula.

33. To write chemical formulas using these numbers.

34. To describe the qualitative and quantitative meaning of the chemical formula.

35. To describe the basic conventions of chemical nomenclature and to apply these in naming simple binary and ternary compounds.

36. To calculate formula masses from chemical formulas and mass numbers.

37. To calculate the mass of one mole of an element, ion, or compound from its "formula."

38. To calculate the number of moles in a given mass of a chemical species and to calculate the mass corresponding to a given number of moles.

39. To solve problems designed to interrelate mass numbers, formula weights, Avogadro's number, and the mole.

40. To calculate the percent composition of a compound from its formula.

41. To calculate empirical and molecular formulas from percent composition and molecular mass data.

42. To identify the types of chemical changes or reactions.

43. To write and balance molecular and ionic equations by the inspection method.

44. To identify the quantitative relationship between reactants and products in chemical reactions.

45. To explain mole ratio calculations, mole-weight, and weight-weight calculations.

46. To solve mole ratio, mole-weight, and weight-weight problems.

47. To define critical pressure and critical temperature.

48. To describe, in terms of Kinetic Molecular Theory, Boyle's Law, Charles' Law, Gay-Lussac's Law, Dalton's Law, and Graham's Law.

49. To solve numerical problems involving Boyle's Law, Charles' Law, Gay-Lussac's Law, general (combined) Gas Law, water vapor correction, formula weights of gases by the mole method, Ideal Gas Law, Graham's Law, and Dalton's Law.

50. To solve numerical problems involving the density and specific gravity of gases.

51. To solve mass-volume and volume-volume problems.

52. To define heat of fusion, heat of vaporization, basic anhydride, acid anhydride, hydrate, water of crystallization (hydration), hygroscopic, deliquescent, efflorescence, allotropy, evaporation (vaporization), sublimation, vapor pressure, volatile, boiling point, normal (standard) boiling point, and freezing (melting) point.

53. To list the physical properties of water.

54. To describe the formation and chemical properties of water.

55. To describe hydrogen peroxide.

56. To state the properties of natural waters.

57. To define solution, solute, solvent, miscible, immiscible, osmosis, osmotic pressure, hypotonic, isotonic, hypertonic, and dialysis.

58. To explain the concepts of soluble, insoluble, saturated, unsaturated, and supersaturated.

59. To identify the types of solutions.

60. To explain why substances dissolve.

61. To describe the following methods of expressing concentration: percent by weight and volume, molarity, molality, and normality.

62. To solve problems involving percent by weight and volume, molarity, molality, and normality.

63. To solve problems based on equivalents of reactants, acid-base titrations, and dilutions.

64. To define electrolysis, electrolyte, non-electrolyte, and strong and weak electrolytes.

65. To identify selected compounds as being electrolytes or nonelectrolytes.

66. To explain the activity series and to predict chemical reactions on the basis of the activity series.

67. To describe the concepts of ionization and dissociation.

68. To identify the Bronsted-Lowry and Lewis concepts of acids and bases.

69. To describe the pH scale.

70. To write ionic equations.

71. To describe reversible reactions, rates of reaction, and chemical equilibrium.

72. To explain the principle of Le Chantelier.

73. To describe the effect of each of the following on reaction rate and equilibrium: concentration, pressure, temperature, and catalysts.

NATURAL SCIENCE 156--CHEMISTRY FOR THE HEALTH SCIENCES

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To review the nature and properties of matter and identify the changes that matter undergoes during chemical reactions.
2. To demonstrate one's ability to perform scientific measurements and use the metric system satisfactorily.
3. To convert from one system of measurement to another.
4. To demonstrate and identify the structural organization of the atom.
5. To relate electron structure of the atom to the type and nature of bonds formed between atoms and to the writing of formulas.
6. To list common types of chemical reactions and give examples.
7. To indicate the factors that alter or determine reaction rates.
8. To demonstrate an understanding of chemical equations by being able to write and balance correctly such equations on demand.
9. To identify the properties of oxygen and define its application and function in respiration, oxidation, and oxygen therapy.
10. To compare oxygen and ozone in terms of properties and functions.
11. To list the properties and importance of hydrogen.
12. To relate importance of the physical properties of water.
13. To indicate types of reactions relative to water.
14. To define the terms: hydrates, anhydrous, efflorescent, hydroscopic, deliquescent, neutralization, and hydrolysis in relation to water chemistry.
15. To demonstrate and list the properties of hard water and to show how hard water may be softened.
16. To demonstrate and compare the properties of true solutions, suspensions, colloidal solutions and emulsions, and to show how they relate to the health sciences.
17. To compare the common acids, bases, and salts and to show their physiological significance within the body.
18. To explain the process of ionization and its importance physiologically.

19. To explain body electrolytes and their relation to acid-base balance, and to describe the mechanisms by which the body maintains this balance.

20. To explain the chloric shift and its role in the exchange of gases during respiration.

21. To demonstrate the broader concepts of redox reactions by balancing simple equations of this type, and to relate oxidation and reduction to electron loss and gain within the reaction.

22. To show the effect of redox reactions in the action of bleaching agents and antiseptic agents used in medicine.

23. To contrast and compare organic chemistry with inorganic chemistry.

24. To describe the broad scope of organic chemistry.

25. To outline the classification and properties of organic compounds on the basis of their functional groups and to use this information as a foundation for the study of food stuffs and metabolism.

26. To review briefly some of the more important organic compounds used in health occupations procedures.

27. To describe some of the common types of organic reactions.

28. To list the properties of carbohydrates, lipids and proteins.

29. To classify carbohydrates, lipids, and proteins according to chemical structure.

30. To indicate the sources of carbohydrates, lipids and proteins used by the body.

31. To list and describe the properties of enzymes and the factors that control the rates of enzymatic reactions.

32. To contrast the roles of enzymes, vitamins, and hormones in physiological processes.

33. To identify the hydrolytic changes that ingested foods undergo during the process of digestion, and to specify the enzymes that catalyze these changes.

34. To trace the passage of the end products of digestion into the blood and tissue cells.

35. To outline the overall scheme of carbohydrate, lipid, and protein metabolism within the body.

36. To relate the processes of metabolism to energy changes within the body.

37. To describe the composition and functions of nucleoproteins within the body.

38. To relate the part nucleic acids play in the synthesis of proteins and cell replication.

39. To describe the composition and functions of the blood.

40. To outline the process of blood clotting.

41. To review the role of the kidneys in maintenance of acid-base balance.

42. To compare the protein and non-protein nitrogen containing compounds in the blood.

43. To list the general properties and function of urine.

44. To describe how urine is formed and list some of the abnormal components of urine; to contrast these with the normal components.

45. To describe the nature of radioactivity, to list the types of radiation produced by radioactive materials, and to contrast the properties of these radiations with respect to energy and effects on human tissue.

46. To list some of the common radioisotopes and indicate their use in medicine.

47. To identify some of the common ways by which radiations are measured.

48. To outline the precautions required for the safe handling of radioactive materials.

The student's laboratory activity should include the following competencies:

1. To specify the basic laboratory safety rules to be observed in this laboratory.

2. To develop greater adeptness in a number of standard laboratory techniques.

3. To review metric measurement and unit conversion skills.

4. To compare the properties of hydrogen, carbon dioxide and oxygen.

5. To identify the methods of using oxygen in patient therapy.

6. To contrast the chemical and physical properties of water that are of physiological significance.

7. To compare crystalloids and colloids in relation to their interaction with synthetic and living membranes.

8. To contrast the process of diffusion and osmosis in relation to their interaction with synthetic and living membranes.

9. To prepare some common acids and bases, identify their properties, and describe some applications of these compounds to physiological chemistry.

10. To standardize an acid and a base by the process of titration.

11. To observe laboratory evidence that ionization occurs in the laboratory.

12. To review the concept of pH and pOH.

13. To use the pH meter to record a number of pH readings of solutions in the lab, and to compare these readings made with Hydrion paper and other test papers.

14. To identify the function of buffers and describe how they operate physiologically.

15. To conduct a gastric analysis for free and combined acidity using suitable indicators.

16. To apply the concept of redox to some common types of laboratory reactions as a method of interpreting such reactions.

17. To identify the elements common to organic compounds.

18. To construct some simple models of representative organic compounds as a means of explaining isomeric structure.

19. To compare the properties of common organic compounds and to identify their utilization in health occupations.

20. To compare the effects of ketones and aldehydes on reagents such as Benedict's solution, and relate this to tests for sugar in urine.

21. To relate the chemical and physical properties of carbohydrates, lipids, and proteins that are significant in physiological processes

22. To demonstrate some of the common properties of enzyme systems.

23. To conduct a study of the process of digestion by a pancreatic extract.

24. To analyze a urine specimen for normal and abnormal components; to do a physical examination of the same specimen also.

25. To conduct an experiment with paper chromatography as a means of separating ink and dye mixtures into their components.

26. To observe how such factors as amount and type of radioactive material, distance, and shielding affect one's exposure to radiation.

NATURAL SCIENCE 205--ZOOLOGY 1

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To define Natural Science.
2. To list and discuss the levels of organization.
3. To list the taxonomic units.
4. To relate cell structure to cell function.
5. To discuss the structure and function of cell organelles.
6. To outline chemical nature of cells.
7. To list the phases of mitosis and meiosis and explain their importance to animal growth and reproduction.
8. To describe how cells grow and pass information to new cells so that they develop properly (genetics).
9. To list the four classes in this phylum.
10. To explain the life cycle and structure of representative members of each of the four classes.
11. To define the economic importance of the phylum.
12. To describe life cycle and structure.
13. To explain the economic importance.
14. To enumerate the classes of coelenterates.
15. To describe anatomy and structure of representative species of the various classes.
16. To compare the life cycles of the medusa and polyp forms.
17. To define the economic importance of the phylum.
18. To describe the life cycles of parasites and free-living representative species.
19. To identify the anatomy of given examples.
20. To define the economic importance of the phylum.
21. To classify representative species in this phylum.
22. To compare the anatomy of examples of the classes.
23. To explain the economic importance.

24. To explain the life cycles of members of this phylum.

25. To describe the anatomy of representative species.

26. To explain the economic importance.

27. To describe the anatomy of given examples.

28. To identify the life cycle of members of this phylum.

29. To explain the economic importance.

30. To compare the life cycle of representative species.

31. To describe the anatomy of given examples.

32. To define the economic importance of this phylum.

33. To explain the life cycle of members of the major classes.

34. To describe the anatomy of members of the major classes.

35. To define the economic importance of the phylum.

36. To contrast good and bad ecological practices.

37. To explain why good farming is good ecology.

NATURAL SCIENCE 206--ZOOLOGY 2

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify the biological characteristics and contributions of the Phylum Chordata.
2. To outline the relationships of the Chordates to the Invertebrates.
3. To list the Classes of Vertebrates and their principle characteristics.
4. To discuss Amphioxus as an early Chordate.
5. To outline the taxonomy of the Pisces.
6. To describe the general characteristics of the major groups of fishes.
7. To discuss some aspects of the anatomy, physiology, and natural history of the Osteichthyes.
8. To identify and discuss the general characteristics of the Anura, Caudata, and Gymnophiona.
9. To list and describe the anatomy, physiology and natural history of the Amphibia as a group.
10. To list the major groups of Reptiles, and to outline their general characteristics and biological contributions.
11. To discuss the adaptations of the Reptiles to a terrestrial environment.
12. To describe some aspects of the natural history, and economic importance of the Reptilia.
13. To discuss the taxonomy and evolutionary history of the birds.
14. To list some of the outstanding characteristics and biological contributions.
15. To outline some of the anatomical and physiological adaptions of the birds to flight.
16. To discuss some aspects of the economic importance, natural history, and behavior (eg. migration, nesting) of birds.
17. To describe the general characteristics of the mammals.
18. To list the principle orders of mammals together with representative animals.
19. To discuss the economic importance of the mammals.
20. To describe the various ways in which nature protects organisms in their environment.

21. To discuss the structure and functions of:

    a. Fish Scales
    b. Feathers
    c. Hair
    d. Skin

22. To list the functions of muscles.

23. To list the three types of muscles found in vertebrates:

    a. Skeletal
    b. Cardiac
    c. Visceral

24. To describe the gross and microscopic structure of skeletal muscle.

25. To describe the nature and functions of the vertebrate skeleton.

26. To list and describe the principle types of supporting tissues, including bone and cartilage.

27. To discuss the histology of bone and cartilage.

28. To identify the axial and appendicular skeletons.

29. To compare the skeletal systems and some of their modifications, of the various classes of vertebrates.

30. To describe the chemical process of digestion.

31. To list the organs of human digestion and outline their gross anatomy and function.

32. To examine some modifications of the digestive system in some vertebrates.

33. To describe the process of cellular respiration.

34. To discuss the gross anatomy of the human respiratory system.

35. To outline the mechanics of breathing.

36. To compare human respiration with Piscine and Avian respiration.

37. To outline the general scheme of circulation in the human.

38. To describe the structure and scheme of circulation in the Mammalian heart.

39. To illustrate the evolution of the Vertebrate heart.

40. To define the terms "pulmonary" and "systemic circulation".

41. To list the functions of the blood.

42. To describe the appearance and functions of:

    a. Plasma
    b. Leucocytes
    c. Erythrocytes
    d. Platelets

43. To define the term "excretion".

44. To diagram the gross anatomy of the human excretory system.

45. To describe the gross and microscopic appearance of the vertebrate kidney.

46. To illustrate the processes of:

    a. Filtration
    b. Selective Reabsorption
    c. Augmentation

47. To discuss the evolution of the Vertebrate kidney.

48. To review the processes of mitosis and meiosis and their role in gametogenesis.

49. To describe the gross anatomy of the human male and female reproductive systems.

50. To outline the reproductive cycle of the human female.

51. To discuss some of the variations in reproductive anatomy and physiology found in some mammals.

52. To describe the histology of nerve tissue and outline the nature of the nerve impulse.

53. To identify the parts of the human nervous system:

    a. Brain and spinal cord.
    b. Cranial and spinal nerves.
    c. Peripheral nervous system.

54. To describe a simple reflex arc.

55. To list the endocrine glands of man.

56. To define the term "hormone".

57. To describe some effects of hormonal imbalance.

(Lectures on the following subjects will be given if time permits, or if interested students wish to conduct or undertake laboratory or library research in these areas.)

1. To discuss the significance of behavior as an adaption to an organisms environment.

2. To define the term "instinct".

3. To contrast instinctive vs. learned behavior.

4. To provide and discuss some examples of instinctive and learned behavior in select animals;

   a. Imprinting
   b. Selective and insight learning
   c. Migration
   d. Social behavior among animals

OCCUPATIONAL THERAPY ASSISTANT 112--GENERAL WOODWORKING

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify common types of wood.
2. To order wood from dealers properly.
3. To lay out a project.
4. To measure and gauge.
5. To review terms and procedures.
6. To square stock.
7. To identify and use hammers and mallets.
8. To identify types of hand saws and describe use.
9. To perform the operations of ripping, cross cutting, and cutting curves and openings.
10. To identify parts of a plane; to clean, sharpen, and use.
11. To identify types of drills.
12. To use properly different types of drills.
13. To identify, use, and sharpen chisels, gouges, and carving tools.
14. To form with a spokeshave.
15. To select and use files.
16. To describe the use of clamps and handscrews.
17. To operate hand, disc, and belt sanders.
18. To describe use of hand electric drill.
19. To rip and cut circles with sabre saw.
20. To use hand router.
21. To adjust jig saw blade.
22. To adjust for straight cut.
23. To saw fret work.
24. To saw straight and curved.
25. To change band on band saw.

26. To set up for ripping and to rip to desired width.

27. To set up and crosscut pieces of stock.

28. To identify types, uses, and ordering of nails and screws.

29. To drive nails.

30. To fasten with screws.

31. To apply a hinge.

32. To identify kinds and describe preparation of glue.

33. To describe uses and how to apply glue.

34. To sand flat surfaces, ends, and curves.

35. To describe how to apply finishes by hand and with spray gun.

36. To identify types and proper uses of finishing products.

37. To observe safety and cleanup measures.

38. To identify types of wood fillers.

39. To describe care and cleaning of brushes.

40. To identify and describe use of solvents.

41. To observe safety precautions.

42. To lay out a project design.

43. To fasten and assemble a frame.

44. To construct and assemble a drawer.

45. To cut out, sand, shape, assemble, and finish project.

46. To cut out wood designs, using power and hand tools.

47. To assemble and finish a selected wood project.

OPERATING ROOM ASSISTANT 150--MICROBIOLOGY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To relate the field of microbiology to the other sciences, especially to the related health sciences.
2. To discuss the historical background and some of the important leaders who contributed to the advances in microbiology.
3. To use and care for some of the important tools used in microbiology, especially the compound microscope.
4. To recognize the basic classification of microorganisms important in medical microbiology.
5. To describe the general characteristics of the important groups of microorganisms.
6. To list some of the specific identifying characteristics of common pathogens and of some of the common nonpathogens in each of the microbial groups.
7. To describe the pathogenesis which results from some of the specific organisms.
8. To identify forms of treatment and prophylaxis which can be used to minimize the harm caused by the pathogens.
9. To identify the basic requirements for microbial growth.
10. To perform a Gram stain and to discuss some other staining procedures and their importance in bacterial identification.
11. To describe various cultural techniques used to study and identify microbes.
12. To discuss the importance of microbial control.
13. To describe how some of the physical and chemical agents are used in controlling microbial growth.
14. To relate the basic principles of control to the maintenance of good health.
15. To identify the role of microbes in disease conditions.
16. To describe how microbes which cause disease enter and leave the body.
17. To describe how the body defends itself against microbes.
18. To discuss the importance of immunity in maintaining good health.

19. To identify the role microbiology plays in control of:

    a. food sanitation
    b. water sanitation
    c. milk sanitation
    d. environmental sanitation

20. To discuss how public health can be promoted on the local, state, and national levels.

LABORATORY UNITS

1. To identify the important parts of the microscope and to explain how they function.

2. To use and care for the microscope properly.

3. To observe some of the basic culture vessels.

4. To use some of the basic culture media to grow organisms.

5. To recognize evidences of microbial growth in either liquid or solid media.

6. To study some characteristics of the organisms which have been cultured.

7. To perform a Gram stain.

8. To identify other techniques used to stain microbes.

9. To identify and enumerate organisms in a variety of environments.

10. To use mechanical, physical, and chemical means to control microbial growth.

11. To illustrate antigen-antibody reactions by using the blood typing procedure.

12. To observe the various types of blood cells with the microscope.

13. To draw some representative pathogenic and non-pathogenic protozoans and to answer some questions about them.

14. To draw and answer questions about some of the worms which cause disease.

15. To draw and identify the characteristics of some of the arthropods which can infest man and/or be vectors of human disease.

16. To draw some representative yeasts and molds and answer some questions about them.

17. To describe the characteristics of some representative spherical bacteria and of some of the diseases they cause.

18. To describe the characteristics of some representative rod-shaped bacteria and of some of the diseases they cause.

19. To describe the characteristics of some representative spiral bacteria and of some of the diseases they cause.

20. To describe some of the characteristics of the acid-fast organisms; of the rickettsia; and of the viruses, and to relate them to the diseases they cause.

PHYSICAL EDUCATION 101--PHYSICAL EDUCATION

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected to:

1. At the start of the semester, given the Aerobics 12-min. Classification Test and placement in one of the 5 categories in pp35-56 Aerobics Manual, CHART his conditioning program for 12 weeks. For the first 6 weeks his chart will use the running, or stationary running programs from his Gym class plus his own other 4-days-per-week participation.

2. CHART his conditioning program for weeks 13 through 16 using the Aerobics conditioning programs or choosing his exercises from the point value charts in the Aerobics Manual, or of the Jogging Manual's Plan A, B, or C, or the Walker-Joggers Program p. 68.

   (NOTE: This time schedule presumes 2 weeks of testing at the semester start plus one week of Introduction to Survey, and three weeks to study Aerobics and Jogging Manuals.)

3. Given the Aerobics 12-minute Test at the end of the semester, have his category placement no lower than the original test, and hopefully one step higher.

4. Given a list of leisure time sports he will pick out the Exciting "Now" Sports.

5. Describe the training requirements, the equipment, the cost of his chosen Exciting "Now" Sport.

6. Prepare a chart of at least one interest of his choice of Lifetime Leisure Activities in each of six categories:

   a. Arts
   b. Community service
   c. Hobbies
   d. Pastimes
   e. Personal improvement
   f. Sports

7. List the problems of Conservation. (Reference: "The Quiet Crisis")

8. List the solution to conservation problems. (Reference: "How To Prevent The Pillage of America")

9. Do his category program (determined by his 12-min. Aerobics Test and Classification) in running or stationary running each week progressively in class, and be expected to do one of these two activities 4 more times each week on his own time. NOTE: The category programs for running and for stationary run are in the Aerobics Center Section of the Manual.

10. By the end of the 6th week from the start of the semester, the student will have charted his own program in Survey class and will progress on his own program on his 4-day-per-week own time at least through the rest of the semester.

11. The student with medical limitations will work with his medical adviser to determine the pre-conditioning, and will be gauged accordingly. Category X may be used.

12. Participate in, and learn to enjoy, at least one individual sports activity.

13. Participate in, and learn to enjoy, at least one team sports activity.

14. Experience some interesting, less strenuous leisure activities for retirement, for middle age, and for now.

15. A goal for each student shall be: when he gets into top condition, to maintain his physical conditioning by using the 30 points Aerobics Manual Program. (20 points for women)

16. Take the Swimming and the 12-min. Aerobic Classification Tests.

17. Demonstrate the proper use of a life jacket, and to be able to list the advantages of additional demonstration life jackets.

18. Demonstrate a balanced face up float for 15 seconds in neck deep water.

19. Do a comfortable inhale to either Right or Left side through the mouth and exhale through the nose and mouth in the water rhythmically at the rate of 24-36 times in 2 min. (known as rhythmic breathing or rotary breathing)

20. Demonstrate rescues with a reaching pole, and with an article of clothing.

21. Demonstrate breath control in deep water to maintain himself with a minimum of movement (floating, treading, dog paddle, or a very slow breast stroke) for one minute; demonstrate the proper coughing procedure if he gets into trouble doing the above. (Goal for non- or fear swimmer is one minute; for poor swimmer equals 5 minutes.)

22. Demonstrate changing direction and changing to another stroke or float.

23. Do a correct water entry feet first; head first.

24. Swim under water a distance of 3 body lengths, protecting his head alternately with one hand as he strokes.

25. Demonstrate the elementary back stroke 25 yards.

26. Participate in several swimming strokes, and to demonstrate a good comfortable performance in the stroke of his choice.

SOCIAL SCIENCE 110--THE AMERICAN ECONOMY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To compare the historical development of economic problems faced by all men and societies.
2. To describe the role of the consumer in the American economy.
3. To outline the business enterprise.
4. To describe labor, its organization, and its development, and to identify some of its uses and rewards.
5. To identify the problems of certain segments of our economy: the farmer, the small businessman, and the aged.
6. To describe how demand functions.
7. To describe how supply functions.
8. To differentiate how prices are determined by the interaction of supply and demand in the classical model.
9. To describe the functions of money and the supply of money.
10. To describe the federal reserve system.
11. To describe how banks create money.
12. To describe the monetary control mechanisms.
13. To describe how we measure economic performance.
14. To compute factor costs and national income.
15. To describe the three streams of expenditures.
16. To identify the importance of savings and investment, and the theory of income and product determination.
17. To describe the multiplier.
18. To list the causes of growth and the structural requirements of growth; theories of the business cycle.
19. To describe the government sector in a historical perspective.
20. To describe the composition of public spending.
21. To describe the fiscal policy; taxes and expenditures.
22. To measure government deficits.

SOCIAL SCIENCE 131--GENERAL PSYCHOLOGY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify the various scientific methods and how they are used to advance psychology as a science.
2. To classify or define the various statistical techniques used in psychology to summarize and draw inferences from data.
3. To identify the necessary and sufficient conditions for conducting a controlled experiment.
4. To identify and classify the various divisions and structures of the nervous system.
5. To compare and contrast behaviors which are innate and behaviors which are not innate.
6. To identify how genetic determination relates to maturation and behavioral development.
7. To identify the different kinds of learning processes.
8. To compare and define some of the terms that relate to learning and retention.
9. To recognize some of the factors that affect learning and retention.
10. To explain how the facts we know about learning can be applied to real life situations.
11. To describe how sensory processes relate to sensation and perception.
12. To identify the underlying processes and physiological structures relating to some of our senses.
13. To describe how environmental information reaches consciousness.
14. To recognize some factors relating to selectivity of perception.
15. To identify how perception is influenced by learning and social factors.
16. To define motivation, conscious and unconscious.
17. To classify motives.
18. To describe the nature and importance of acquired motives in our culture.
19. To list and define the basic physiological factors underlying emotional states and tensions.
20. To relate the role of perception to emotional arousal.

21. To describe the effect of prolonged states of emotional tension upon individual well-being behavior patterns.

22. To recognize the many factors involved in personality formation.

23. To identify the different theories of personality.

24. To identify some of the different kinds of tests used in psychology.

25. To explain the difference between objective and projective tests.

26. To list and describe the characteristics of the mentally healthly personality.

27. To identify the role that frustration and conflict play in the adjustment process.

28. To list and categorize the different behavior disorders.

29. To identify the different approaches to psychotherapy.

30. To identify how society and interpersonal relations affect our values, perceptions and behavior.

SOCIAL SCIENCE 133--CHILD PSYCHOLOGY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To outline the history of child study.
2. To list the modern approaches to child study, including observation, anecdotal reports, autobiographies, questionnaires and check lists, interviews, rating scales, projective techniques, experimental techniques, psychophysical studies, and clinical case studies, and their interrelatedness in the understanding of child behavior.
3. To specify the concepts of normal child development.
4. To demonstrate the operation of genetic or biological inheritance.
5. To list the significance of biological inheritance in physical, mental, and disease characteristics.
6. To outline the stages of prenatal development including the germinal, embryonic, and fetal periods.
7. To identify the birth experience and characteristics of the "just-born" infant.
8. To identify the physical characteristics of the neonate.
9. To demonstrate the sensory acuity of the neonate.
10. To list the reflexes of the neonate.
11. To identify the emotional and social responses of the neonate.
12. To identify the general factors in the study of growth.
13. To list the skeletal changes and growth of teeth.
14. To list changes in height and weight.
15. To list changes in body proportions.
16. To identify the facets of physiological development.
17. To identify the general characteristics of the development of motor skills.
18. To list the prenatal and neonatal aspects of motor development.
19. To demonstrate the motoric development in sitting and walking.
20. To demonstrate the motoric development of arm and hand ability.
21. To demonstrate the development of finer and more complex motor skills.
22. To list prenatal and neonatal aspects of sensory development in childhood.

23. To list the aspects of sensory development in childhood.

24. To identify the factors influencing perceptual development.

25. To list the stages in perceptual development.

26. To list the developmental stages of intercommunication, including reflex sounds, feeble gestures, babbling, use of simple words, combination of words into thought units (oral and written), and the mastery of the language arts.

27. To identify the developmental patterns of speech.

28. To identify the developmental patterns of word usage and verbal language.

29. To list the factors influencing normal speech development.

30. To identify the development patterns of reading and written ability.

31. To list the factors influencing conceptual development.

32. To identify the development of the concept of self.

33. To identify the development of orientation to space and time.

34. To identify the development of form, color, and number concepts.

35. To understand cause-and-effect relationships.

36. To identify stages in the development of cognition and reasoning ability.

37. To differentiate between the concept of intelligence and cognitive development.

38. To list the factors affecting intelligence.

39. To list the classification of intelligence tests.

40. To compare the predictive value of intelligence tests and the concept of intelligence.

41. To discuss I.Q. versus intelligence.

42. To identify learning as a developmental process.

43. To list factors affecting the development of learning including intelligence and motivation.

44. To list the developmental stages in learning.

45. To identify the specific learning processes of classical conditioning and operant learning as relative to childhood development.

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46. To apply the principles of generalization, reinforcement, forgetting, and transfer to learning.

47 To identify the concepts of imagination and creative activity and their interrelatedness.

48. To identify the stages in the development of creative expression.

49. To list the factors influencing the development of creative activity.

50. To identify the concept of play.

51. To identify the theories of play.

52. To list characteristics and varieties of play.

53. To list stages in play development.

54. To identify the importance of play and creative activity in child development.

55. To identify the meaning and bases of emotional behavior.

56. To list accompanying physiological changes in the stimulation of emotions.

57. To identify the stages in the development of emotional behavior.

58. To enumerate factors affecting the development of emotional behavior.

59. To identify the development of specific emotions, encluding fear, anger, disgust, jealousy, affection, elation, and joy.

60. To list the approaches to the study of personality development.

61. To list the factors influencing personality development.

62. To compare the stages of personality development from infancy through pre-adolescence.

63. To identify the concept of social behavior.

64. To list the factors influencing social development, including emotions, leadership, play, and group experience.

65. To list the stages in social development.

66. To identify the concept and process of socialization.

67. To list the common forms of behavior problem in childhood.

68. To identify factors contributing to maladjustment.

69. To identify factors resulting from maladjustment.

70. To identify normal defense mechanisms.

71. To identify and compare types of treatments for problem children.

SOCIAL SCIENCE 151--PSYCHOLOGY OF HUMAN RELATIONS

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To explain the general content of the course.
2. To explain the scientific method and how it is used in psychology.
3. To describe the nature and classification of motives.
4. To list Maslow's hierarchy of needs.
5. To diagram motivated behavior in terms of need, act, and goal.
6. To list ten reasons why people behave as they do.
7. To explain the importance of unconscious motives.
8. To identify ways in which the types of motives that activate individuals can affect individual behavior and the behavior of a society as a whole.
9. To relate emotions both to physical changes in the individual and to his observable actions.
10. To give an example to illustrate how an emotion may reduce the effectiveness of behavior and also how it may increase the effectiveness of behavior.
11. To give two examples of how emotions may result from learning.
12. To distinguish one difference between the emotional state of fear and anxiety.
13. To list two general causes for frustrations.
14. To name and define two types of conflict an individual may experience.
15. To identify the meaning of guilt and how it may contribute to stress.
16. To describe what learning is and the general distinction between associative and cognitive processes.
17. To describe the process of classical conditioning, and explain the meaning of the technical terms used.
18. To describe the process of operant conditioning and list the meaning of the technical terms used.
19. To describe the types of cognitive learning.
20. To describe the three levels of memory and the kind and amount of information processed by each.
21. To describe the three traditional theories of why forgetting occurs.

22. To identify good study techniques and explain how and why they aid learning.

23. To describe the relationship between perception and attention.

24. To identify principles that determine how sensations are organized into perceptions.

25. To describe how factors such as motivation and expectation can influence our perceptions of objects and events.

26. To describe altered states of consciousness, including sensory deprivation, sleep and dreaming, hypnosis, meditation, and drug-induced experiences.

27. To descirbe the basic building blocks that make up thought.

28. To describe the varieties of imagery that an individual can experience.

29. To list the various types of concepts and describe how they are formed.

30. To describe the basic steps in problem solving.

31. To describe creative problem solving.

32. To describe the basic units of language and how language affects thought and perception.

33. To describe the structure and dynamics of personality and the continuity of an individual's development over time.

34. To describe the possibilities, limitations, and dangers of tests as they are used in school and work settings.

35. To list the basic types of tests used in school and work settings.

36. To identify the technical terms used in the interpretation of tests.

37. To describe behavior and the concept of normality as relative positions on the performance continuum.

38. To list and define conceptual models for viewing psychopathology.

39. To discuss the dynamics of adjustment and psychopathology.

40. To differentiate, by definition and behavior, the various types of psychopathology and cite examples with each relative area:

    a. neuroses
    b. psychoses
    c. personality disorders
    d. psychophysiological disorders

41. To compare and contrast a variety of theoretical/conceptual positions

as to the causal factors or bases of psychopathology.

42. To discuss, and exhibit through discussion, an increased awareness of the societal problem of mental illness and its treatment. (May include such aspects as institutionalization vs. normalization.)

43. To explain the advocacy position related to the mentally ill and list basic rights of these individuals.

44. To identify stages of adult development and describe challenges and crises of each stage from young adulthood through old age.

45. To describe the role of work, occupational choices, and lifestyles in personal development within this society.

46. To describe the natural processes of aging and how they are affected by this society.

47. To describe the stages an individual goes through before his death.

48. To describe how this society reacts to the dying person.

49. To describe how morality and values develop as the individual grows and develops.

50. To identify reasons why human beings like each other and conditions under which human beings are drawn to others.

51. To list the factors that influence our impressions of other people and our interpretation of their actions.

52. To identify causes of human aggression and methods for controlling aggression.

53. To describe how attitudes are acquired and how they are changed. To identify factors involved in the development of prejudice and stereotypes.

54. To describe the nature and function of groups in work and community settings.

55. To identify ways in which individuals are influenced by the groups to which they belong.

56. To identify factors to be considered in selecting a career field.

57. To identify methods of exploring career fields.

58. To identify effective methods of looking for a job.

59. To identify factors involved in achieving job and career satisfaction.

60. To describe common patterns and stages of career development in this society.

61. To identify problems caused by loss of a job and mid-life career change.

62. To apply principles of group relations, attitudes and attitude change, motivation, and communication in determining what makes an effective work environment.

SOCIAL SCIENCE 153--AMERICAN INSTITUTIONS

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To explain the relations between the individual and institutions.
2. To formulate the institutional approach to contemporary problems.
3. To define the social and economic functions of the family.
4. To evaluate the current status of marriage.
5. To identify roles of men and women.
6. To explain the patterns of raising children.
7. To evaluate the health care available to the family.
8. To appraise the position of the aged in a family-oriented and youth-oriented society.
9. To define the functions of education in a democratic society.
10. To explain the organization of education in the United States.
11. To appraise the effects of education upon the individual.
12. To analyze opportunities for education.
13. To define the purposes of government in a democracy.
14. To enumerate the powers and functions of the Presidency, Congress, Supreme Court, and the Bureaucracy.
15. To evaluate politics including the media, public opinion, political parties, and voting behavior.
16. To describe pressures upon public policy decisions from special interests and citizens.
17. To examine political and economic implications of a corporate society upon international relations.
18. To examine the significance of national and multinational corporations.
19. To analyze the organization and effects of the corporate workplace.
20. To specify the relationships of technology to industry and work.
21. To examine urbanization and urban problems.
22. To explain the existence and treatment of poverty.
23. To examine the impact of industrialization upon the environment.

24. To define the functions of idealogy in a democratic society.

25. To determine the position of religion.

26. To indicate patterns of authoritarianism.

27. To examine the existence of economic inequality.

28. To describe blatant, cultural, and institutional racism as it affects Blacks, Latinos, and Native Americans.

29. To identify blatant and institutional sexism.

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SOCIAL SCIENCE 203--INTRODUCTION TO SOCIOLOGY

CLEP evaluation at MATC to be based on the student's accomplishment of the following competencies. Students will be expected:

1. To identify the field of social science and the subject matter of sociology.
2. To demonstrate a minimum of scientific methodology.
3. To describe the way men behave as being largely determined by their social relationships and by their membership in groups, as opposed to being individually determined.
4. To identify roles and role behavior.
5. To list the structures, processes, and kinds of groups.
6. To define the nature and characteristics of culture.
7. To identify the interrelatedness of culture and social organization.
8. To demonstrate that all cultures have to deal with certain basic problems through norms which specify appropriate and inappropriate behavior.
9. To list the varieties of ways with which the same or similar basic problems may be dealt in various cultures.
10. To identify the concepts and implications of enthnocentrism and culture relativity.
11. To compare the nature and methods of cultural change.
12. To identify the processes by which an individual becomes a part of his society.
13. To list the influences of culture and society on the development of personality.
14. To demonstrate the interrelationships of original nature, environment, and interpersonal experiences on the development of the individual.
15. To compare the agencies of socialization such as the family and the peer group with respect to their significance in the development of the individual.
16. To identify the ongoing influences of adult relationships and socialization in the continuing development of personality.
17. To identify the processes of resocialization.
18. To define the relative nature of deviance.
19. To list causal theories underlying deviant behavior.

20. To describe the development of a deviant career.

21. To compare methods of controlling deviance.

22. To list the significances of primary group membership to the individual.

23. To identify the implication of primary group relationships as a link between the individual and the society.

24. To identify the implications of primary groups in providing security to the individual.

25. To identify the implications of primary groups within large scale organizations.

26. To identify the nature and types of organizations.

27. To list the significances of associational membership to the individual.

28. To compare the formal and informal structures of organizations and their interdependence.

29. To identify the meaning processes, and significances of institutionalization.

30. To identify those relatively unstructured social situations and their products referred to as collectivities.

31. To differentiate specific collectivities such as mobs, crowds, panics, fads, etc.

32. To identify the nature and methods of public opinion and opinion polling.

33. To identify the nature and methods of propaganda.

34. To identify the nature of rank orders within group structures.

35. To list specific applications and correlates of social stratification.

36. To compare the methods and criteria for studying social stratification.

37. To list the varieties of social mobility.

38. To differentiate between ethnic, racial and other minorities.

39. To describe the origins and dimensions of racism.

40. To distinguish between prejudice, discrimination and racism.

41. To examine aspects of institutional racism: educational, economic, and legal.

42. To sketch the nature of assimilation and exclusion among ethnic and racial minorities.

43. To outine the consequences of prejudice and discrimination in relationship to three minority groups: Blacks, Native Americans, and Latins.

44. To compare patterns of sex, ethnic, and racial stratification.

45. To identify population dynamics as a sociological concept relative to demography.

46. To identify population dynamics as a sociological concept relative to ecology.

47. To demonstrate the trends in world population.

48. To list future trends in population dynamics and their implications from a sociological point of view.

49. To demonstrate the application of sociological concepts to the institutions of the family, education, religion, politics and economics.

COLLEGE, UNIVERSITY AND VOCATIONAL-TECHNICAL SCHOOL PROGRAMS

PROGRAM LISTING

SCHOOL LISTING

COLLEGE, UNIVERSITY AND VOCATIONAL-TECHNICAL SCHOOL PROGRAMS

PROGRAM LISTING

ANIMAL TECHNICIAN

Madison Area Technical College

ART THERAPIST

Mount Mary College(Milwaukee)
University of Wisconsin-Superior

BIOMEDICAL ENGINEERING TECHNOLOGIST

Milwaukee School of Engineering

BIOMEDICAL ENGINEER

Beloit College
Marquette University(Milwaukee)
Ripon College
University of Wisconsin-Madison

BIOMEDICAL EQUIPMENT TECHNICIAN

Milwaukee Area Technical College
Milwaukee School of Engineering
Western Wisconsin Technical Institute (LaCrosse)

COMMUNITY HEALTH EDUCATOR

University of Wisconsin-LaCrosse

CYTOTECHNOLOGIST

University of Wisconsin-Madison

DENTAL ASSISTANT

Blackhawk Technical Institute(Janesville, Beloit)
Fox Valley Technical Institute(Appleton)
Gateway Technical Institute(Kenosha)
Lakeshore Technical Institute(Cleveland)
Madison Area Technical College
Milwaukee Area Technical College
Moraine Park Technical Institute(Beaver Dam)
Northeast Wisconsin Technical Institute(Green Bay)
Western Wisconsin Technical Institute(LaCrosse)

DENTAL HYGIENIST

Madison Area Technical College
Marquette University(Milwaukee)
Milwaukee Area Technical College

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DENTAL HYGIENIST (con't)

Northeast Wisconsin Technical Institute(Green Bay)

DENTAL LABORATORY TECHNICIAN

Milwaukee Area Technical College

DENTIST

Marquette University(Milwaukee)

DIETETIC TECHNICIAN

Cardinal Stritch College(Milwaukee)
Gateway Technical Institute(Elkhorn)
Mid-State Technical Institute(Wisconsin Rapids)
University of Wisconsin-Green Bay

DIETITIAN

Cardinal Stritch College(Milwaukee)
Mount Mary College(Milwaukee)
University of Wisconsin-La Crosse
University of Wisconsin-Madison
University of Wisconsin-Stevens Point
Viterbo College (La Crosse)

DISPENSING OPTICIAN

Lakeshore Technical Institute(Cleveland)

ELECTROENCEPHALOGRAPH (EEG) TECHNICIAN

Western Wisconsin Technical Institute(La Crosse)

ENVIRONMENTAL AND PUBLIC HEALTH

University of Wisconsin-Eau Claire
University of Wisconsin-Parkside
University of Wisconsin-Oshkosh

ENVIRONMENTAL HEALTH TECHNOLOGIST/TECHNICIAN

Beloit College
Marian College(Fond du Lac)
University of Wisconsin-Green Bay
University of Wisconsin-River Falls

HEALTH CARE ADMINISTRATOR

Carroll College(Waukesha)
Concordia College(Milwaukee)
University of Wisconsin-Eau Claire
University of Wisconsin-Madison
University of Wisconsin-Green Bay

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HISTOLOGIC TECHNICIAN

District One Technical Institute(Eau Claire)

LABORATORY OPTICIAN

Lakeshore Technical Institute(Cleveland)

LICENSED PRACTICAL NURSE

District One Technical Institute(Eau Claire)
Fox Valley Technical Institute(Appleton)
Gateway Technical Institute(Kenosha, Racine)
Lakeshore Technical Institute(Cleveland)
Madison Area Technical College
Mid-State Technical Institute(Stevens Point, Marshfield, Wisconsin Rapids)
Milwaukee Area Technical College
Moraine Park Technical Institute(Fond du Lac, Beaver Dam)
Northeast Wisconsin Technical Institute(Green Bay)
Scared Heart School of Nursing(Milwaukee)
Southwest Wisconsin Technical Institute(Fennimore)
Waukesha County Technical Institute(Pewaukee)
Western Wisconsin Technical Institute(La Crosse)
Wisconsin Indianhead Technical Institute(Superior)

MEDICAL ASSISTANT

Blackhawk Technical Institute(Janesville, Beloit)
Concordia College(Milwaukee)
Gateway Technical Institute(Racine)
Lakeshore Technical Institute(Cleveland)
Madison Area Technical College
Mid-State Technical Institute(Marshfield, Wisconsin Rapids)
Milwaukee Area Technical College
Northeast Wisconsin Technical Institute(Green Bay)
Waukesha County Technical Institute(Pewaukee)
Western Wisconsin Technical Institute(LaCrosse)
Wisconsin Indianhead Technical Institute(New Richmond)

MEDICAL LABORATORY TECHNICIAN

District One Technical Institute(Eau Claire)
Madison Area Technical College
Milwaukee Area Technical College
Western Wisconsin Technical Institute(La Crosse)

MEDICAL OFFICER, MID-MANAGEMENT

Madison Area Technical College

MEDICAL RECORDS ADMINISTRATOR

University of Wisconsin-La Crosse
University of Wisconsin-Milwaukee
Viterbo College(La Crosse)

MEDICAL RECORDS TECHNICIAN

District One Technical Institute(Eau Claire)
Moraine Park Technical Institute (Fond du Lac, Beaver Dam)
Western Wisconsin Technical Institute(La Crosse)

MEDICAL SECRETARY/CLERK-TYPIST/STENOGRAPHER

Blackhawk Technical Institute (Janesville)
Concordia College (Milwaukee)
District One Technical Institute(Eau Claire)
Lakeshore Technical Institute(Cleveland)
Madison Area Technical College
Mid-State Technical Institute(Marshfield)
Milwaukee Area Technical College
Moraine Park Technical Institute (Fond du Lac, Beaver Dam)
North Central Technical Institute(Wausau)
Western Wisconsin Technical Institute(La Crosse)

MEDICAL TECHNOLOGIST

Alverno College(Milwaukee)
Beloit College
Carroll College(Waukesha)
Carthage College(Kenosha)
Edgewood College(Madison)
Lakeland College(Sheboygan)
Marian College(Fond du Lac)
Marquette University(Milwaukee)
Mount Mary College(Milwaukee)
Ripon College
St. Norbert College(De Pere)
University of Wisconsin-Eau Claire
University of Wisconsin-Green Bay
University of Wisconsin-La Crosse
University of Wisconsin-Madison
University of Wisconsin-Milwaukee
University of Wisconsin-Oshkosh
University of Wisconsin-Parkside
University of Wisconsin-Stevens Point
Viterbo College(La Crosse)
University of Wisconsin-Platteville
University of Wisconsin-Superior

MUSIC THERAPIST

Alverno College(Milwaukee)
University of Wisconsin - Eau Claire
University of Wisconsin - Milwaukee
University of Wisconsin - Oshkosh

NUCLEAR MEDICINE THECHNOLOGIST

Alverno College (Milwaukee)
University of Wisconsin-La Crosse

NURSING ASSISTNAT/ORDERLY

Blackhawk Technical Institute(Janesville, Beloit)
District One Technical Institute(Eau Claire)
Fox Valley Technical Institute(Appleton)
Gateway Technical Institute(Elkhorn, Kenosha, Racine)
Lakeshore Technical Institute(Cleveland)
Madison Area Technical College
Mid-State Technical Institute(Marshfield, Stevens Point, Wisconsin Rapids)
Milwaukee Area Technical College
Moraine Park Technical Institute (Fond du Lac, Beaver Dam, West Bend)
North Central Technical Institute(Wausau, Antigo)
Northeast Wisconsin Technical Institute(Green Bay, Marinette, Sturgeon Bay)
Southwest Wisconsin Technical Institute(Fennimore)
Waukesha County Technical Institute(Pewaukee)
Western Wisconsin Technical Institute(La Crosse)
Wisconsin Indianhead Technical Institute(Ashland, New Richmond, Rice Lake, Superior)
Nicolet College and Technical Institute(Rhinelander)

NUTRITIONIST

University of Wisconsin-Green Bay
University of Wisconsin-Madison
University of Wisconsin-Stevens Point

OCCUPATIONAL THERAPIST

Mount Mary College(Milwaukee)
University of Wisconsin-Madison
University of Wisconsin-Milwaukee

OCCUPATIONAL THERAPY ASSISTANT

Fox Valley Technical Institute(Appleton)
Madison Area Technical College
Milwaukee Area Technical College

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OPERATING ROOM ASSISTANT

Fox Valley Technical Institute(Appleton)
Gateway Technical Institute(Kenosha)
Madison Area Technical College
Mid-State Technical Institute(Marshfield)
Milwaukee Area Technical College
Moraine Park Technical Institute(Fond du Lac, Beaver Dam)
North Central Technical Institute(Wausau)
Northeast Wisconsin Technical Institute(Green Bay)
Waukesha County Technical Institute(Pewaukee)
Western Wisconsin Technical Institute(La Crosse)

OPTOMETRIC ASSISTANT/TECHNICIAN

Lakeshore Technical Institute(Cleveland)
Madison Area Technical College

PHARMACIST

University of Wisconsin-Madison

PHARMACY TECHNICIAN

Lakeshore Technical Institute(Cleveland)

PHYSICAL THERAPIST

Marquette University(Milwaukee)
University of Wisconsin-La Crosse
University of Wisconsin-Madison

PHYSICAL THERAPY ASSISTANT

Milwaukee Area Technical College

PHYSICIAN

Medical College of Wisconsin(Milwaukee)
University of Wisconsin-Madison

PHYSICIAN'S ASSISTANT

University of Wisconsin-Madison

PSYCHOLOGIST

Marquette University(Milwaukee)
University of Wisconsin-Oshkosh
University of Wisconsin-Stevens Point
University of Wisconsin-Stout
University of Wisconsin-Superior

RADIOLOGIC (X-RAY) TECHNOLOGIST

Concordia College(Milwaukee)
District One Technical Institute(Eau Claire)
Milwaukee Area Technical College
North Central Technical Institute(Wausau)
Western Wisconsin Technical Institute(LaCrosse)
University of Wisconsin-Madison

REGISTERED NURSE (ASSOCIATE DEGREE)

Blackhawk Technical Institute (Janesville, Beloit)
Fox Valley Technical Institute (Appleton)
Gateway Technical Institute (Kenosha)
Lakeshore Technical Institute (Cleveland)
Madison Area Technical College
Milwaukee Area Technical College
North Central Technical Institute (Wausau)
Northeast Wisconsin Technical Institute (Green Bay)
Waukesha County Technical Institute (Pewaukee)
Western Wisconsin Technical Institute (La Crosse)

REGISTERED NURSE (BACCALAUREATE DEGREE)

Alverno College (Milwaukee)
Carroll College (Waukesha)
Marian College (Fond du Lac)
Beloit College
Edgewood College (Madison)
Marquette University (Milwaukee)
University of Wisconsin-Eau Claire
University of Wisconsin-Madison
University of Wisconsin-Milwaukee
University of Wisconsin-Oshkosh
Milton College
Ripon College
Viterbo College (La Crosse)

RESPIRATORY THERAPIST

Madison Area Technical College
Mid-State Technical Institute (Marshfield, Wisconsin Rapids)
Milwaukee Area Technical College

RESPIRATORY THERAPY TECHNICIAN

Milwaukee Area Technical College
Northeast Wisconsin Technical Institute (Green Bay)
Fox Valley Technical Institute (Appleton)

SANITARIAN

Milwaukee Area Technical College

SCHOOL HEALTH EDUCATOR

University of Wisconsin-La Crosse
University of Wisconsin-Madison
University of Wisconsin-Milwaukee
University of Wisconsin-Oshkosh
University of Wisconsin-River Falls
University of Wisconsin-Stevens Point
University of Wisconsin-Superior
University of Wisconsin-Whitewater

SPEECH PATHOLOGIST AND AUDIOLOGIST

Marquette University(Milwaukee)
University of Wisconsin-Eau Claire
University of Wisconsin-Madison
University of Wisconsin-Milwaukee
University of Wisconsin-Oshkosh
University of Wisconsin-River Falls
University of Wisconsin-Stevens Point
University of Wisconsin-Whitewater

WARD CLERK

Blackhawk Technical Institute(Janesvislle, Beloit)
District One Technical Institute(Eau Claire)
Fox Valley Technical Insitute(Appleton)
Gateway Technical Institute(Kenosha, Racine)
Lakeshore Technical Institute(Cleveland)
Mid-State Technical Institute(Marshfield, Wisconsin Rapids)
Moraine Park Technical Institute(Fond du Lac, Beaver Dam)
Northeast Wisconsin Technical Institute(Green Bay)
Southwest Wisconsin Technical Institute(Fennimore)
Waukesha County Technical Institute(Pewaukee)
Western Wisconsin Technical Institute(La Crosse)
Wisconsin Indianhead Technical Institute(New Richmond)

WATER AND WASTEWATER TECHNOLOGIST/TECHNICIAN

Milwaukee Area Technical College
Moraine Park Technical Institute(Fond du Lac)
University of Wisconsin-Stevens Point
Beloit College
University of Wisconsin-Green Bay

PRE-PROFESSIONAL CURRICULA

Consult the individual schools for specific information about studies in preparation for certain professional health careers.

COLLEGE, UNIVERSITY AND VOCATIONAL-TECHNICAL SCHOOL PROGRAMS

SCHOOL LISTING

SCHOOL	PROGRAMS
Alverno College 3401 South 39th Street Milwaukee, Wisconsin 53215 (414) 671-5400	Medical Technologist Music Therapist Nuclear Medicine Technologist Registered Nurse(Baccalaureate Degree) Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Beloit College Beloit, Wisconsin 53511 (608) 365-3391	Environmental Health Technologist/Technician Water and Wastewater Technologist/Technician Registered Nurse(Baccalaureate Degree) Medical Technologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers) Biomedical Engineer
Blackhawk Technical Institute 1149 Fourth Street Beloit, Wisconsin 53511	Medical Assistant Ward Clerk Dental Assistant Nursing Assistant Registered Nurse(Associate Degree)
Blackhawk Technical Institute Route #3 Prairie Avenue Janesville, Wisconsin 53545 (608) 756-4121	Dental Assistant Medical Assistant Medical Clerk-Typist Nursing Assistant Registered Nurse(Assoicate Degree) Ward Clerk
Cardinal Stritch College 6801 North Yates Road Milwaukee, Wisconsin 53217 (414) 352-5400	Dietetic Technician Dietitian Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Carthage College Kenosha, Wisconsin 53141 (414) 551-8500	Medical Technologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Carroll College Waukesha, Wisconsin 53186 (414) 547-1211	Health Care Administrator Medical Technologist Registered Nurse (Baccalaureate Degree) Pre-professional curricula (consult the school for information about studies in preparation for professional careers)

SCHOOL	PROGRAMS
Concordia College 3201 West Highland Boulevard Milwaukee, Wisconsin 53208 (414) 344-3400	Health Care Administrator Medical Assistant Medical Secretary Radiologic(X-Ray) Technologist
District One Technical Institute 620 West Clairemont Avenue Eau Claire, Wisconsin 54701 (715) 836-3931	Licensed Practical Nurse Medical Laboratory Technician Medical Clerk-Typist Nursing Assistant Radiologic(X-Ray) Technologist Ward Clerk Histologic Technician Medical Records Technician
Edgewood College 855 Woodrow Street Madison, Wisconsin 53711 (608) 257-4861	Medical Technologist Registered Nurse(Baccalaureate Degree) Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Fox Valley Technical Institute 1825 North Bluemound Drive Appleton, Wisconsin 54913 (414) 739-8831	Dental Assistant Licensed Practical Nurse Nursing Assistant Occupational Therapy Assistant Operating Room Assistant Registered Nurse(Associate Degree) Respiratory Therapy Technician Ward Clerk
Gateway Technical Institute East Centralia Street and Highway H Elkorn, Wisconsin 53121 (414) 723-5390	Dietetic Technician Nursing Assistant
Gateway Technical Institute 3520-30th Avenue Kenosha, Wisconsin 53140 (414) 552-9600	Dental Assistant Licensed Practical Nurse Nursing Assistant Operating Room Assistant Registered Nurse(Associate Degree) Ward Clerk
Gateway Technical Institute 1001 South Main Street Racine, Wisconsin 53403 (414) 637-9881	Nursing Assistant Ward Clerk Medical Assistant Licensed Practical Nurse

SCHOOL	PROGRAMS
Lakeland College Sheboygan, Wisconsin 53081 (414) 565-2111	Medical Technologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Lakeshore Technical Institute 1290 North Avenue Cleveland, Wisconsin 53015	Dental Assistant Dispensing Optician Licensed Practical Nurse Medical Assistant Medical Secretary Nursing Assistant Optometric Assistant Pharmacy Technician Registered Nurse(Associate Degree) Ward Clerk Laboratory Optician
Madison Area Technical College 211 North Carroll Street Madison, Wisconsin 53703 (608) 266-5065	Medical Officer, Mid-Management Dental Assistant Dental Hygienist Animal Technician Licensed Practical Nurse Medical Assistant Medical Laboratory Technician Medical Secretary Nursing Assistant Occupational Therapy Assistant Operating Room Assistant Registered Nurse(Associate Degree) Respiratory Therapist Optometric Technician
Marian College of Fond du Lac 45 South National Avenue Fond du Lac, Wisconsin 54935 (414) 921-3900	Environmental Health Technologist/ Technician Medical Technologist Registered Nursing(Baccalaureate Degree) Pre-professional curricula(consult the school for information about studies in preparation for professional careers.
Marquette University 1217 West Wisconsin Avenue Milwaukee, Wisconsin 53233 (414) 224-7302	Biomedical Engineer Dental Hygienist Dentist Medical Technologist Physical Therapist Registered Nurse(Baccalaureate Degree) Speech Pathologist and Audiologist Pre-preofessional curricula(consult the school for information about studies in preparation for professional careers) Psychologist

SCHOOL	PROGRAMS
Medical College of Wisconsin 561 North Fifteenth Street Milwaukee, Wisconsin 53233 (414) 272-5450	Physician
Mid-State Technical Institute 110 West Third Street Marshfield, Wsiconsin 54449 (715) 387-2538	Medical Assistant Medical Stenographer Nursing Assistant Operating Room Assistant Respiratory Therapist Ward Clerk Licensed Practical Nurse
Mid-State Technical Institute 933 Michigan Avenue Stevens Point, Wisconsin 54481 (715) 344-3063	Licensed Practical Nurse Nursing Assistant
Mid-State Technical Institute 500-32nd Street North Wisconsin Rapids, Wisconsin 54494 (715) 423-5650	Dietetic Technician Nursing Assistant Respiratory Therapist Ward Clerk Medical Assistant Licensed Practical Nurse
Milton College Milton, Wisconsin 53563 (608) 868-2973	Pre-professional curricula(consult the school for information about studies in preparation for professional careers) Registered Nurse(Baccalaureate Degree)
Milwaukee Area Technical College 1015 North Sixth Street Milwaukee, Wisconsin 53203 (414) 278-6600	Biomedical Equipment Technician Dental Assistant Dental Hygienist Dental Laboratory Technician Sanitarian Licensed Practical Nurse Medical Assistant Medical Laboratory Technician Medical Secretary Nursing Assitant Occupational Therapy Assistant Operating Room Assistant Physical Therapy Assistant Radiologic(X-Ray) Technologist Registered Nurse(Associate Degree) Respiratory Therapist Respiratory Therapy Technician Water and Wastewater Technologist/ Technician

SCHOOL	PROGRAMS
Milwaukee School of Engineering 1025 North Milwaukee Street Milwaukee, Wisconsin 53201 (414) 272-8720	Biomedical Engineering Technologist Biomedical Equipment Technician
Moraine Park Technical Institute 700 Gould Street Beaver Dam, Wisconsin 53916	Operating Room Assistant Nursing Assistant Dental Assistant Medical Records Technician Medical Secretary Ward Clerk Licensed Practical Nurse
Moraine Park Technical Institute 235 North National Avenue Fond du Lac, Wisconsin 54935 (414) 922-8611	Licensed Practical Nurse Medical Records Technician Medical Secretary Nursing Assistant Operating Room Assistant Ward Clerk Water and Wastewater Technologist/Technician
Moraine Park Technical Institute 2151 North Main Street West Bend, Wisconsin 53095 (414) 334-3413	Nursing Assistant
Mount Mary College 2900 North Menomonee River Parkway Milwaukee, Wisconsin 53222 (414) 258-4810	Art Therapist Dietitian Medical Technologist Occupational Therapist Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Nicolet College and Technical Institute Highway G South Rhinelander, Wisconsin 54501	Nursing Assistant
North Central Technical Institute P. O. Box 28 Antigo, Wisconsin 54409 (715) 623-7601	Nursing Assistant
North Central Technical Institute 1000 Schofield Avenue Wausau, Wisconsin 54401 (715) 675-3331	Medical Secretary Nursing Assistant Operating Room Assistant Radiologic(X-Ray) Technologist Registered Nurse(Associate Degree)

SCHOOL	PROGRAMS
Northeast Wisconsin Technical Institute 2740 West Mason Street Green Bay, Wisconsin 54303	Dental Assistant Licensed Practical Nurse Medical Assistant Nursing Assistant Operation Room Assistant Ward Clerk Dental Hygienist Respiratory Therapy Technician Registered Nurse(Associate Degree)
Northeast Wisconsin Technical Institute 1601 University Avenue Marinette, Wisconsin 54143	Nursing Assistant
Northeast Wisconsin Technical Institute 229 North 14th Avenue Sturgeon Bay, Wisconsin 54235 (414) 743-2207	Nursing Assistant
Ripon College Ripon, Wisconsin 54971 (414) 748-8102	Registered Nurse(Baccalaureate) Medical Technologist Biomedical Engineer Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Scared Heart School of Practical Nursing 830 North Jackson Milwaukee, Wisconsin 53202 (414) 276-6604	Licensed Practical Nurse
St. Norbert College De Pere, Wisconsin 54115 (414) 336-3181	Medical Technologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Southwest Wisconsin Technical Institute Bronson Boulevard Fennimore, Wiconsin 53809 (608) 822-3262	Licensed Practical Nurse Nursing Assistant Ward Clerk
University of Wisconsin-Eau Claire Eau Claire, Wisconsin 54701 (715) 836-0123	Environmental and Public Health Health Care Administrator Medical Technologist Registered Nurse(Baccalaureate Degree) Speech Pathologist and Audiologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers) Music Therapist

SCHOOL	PROGRAMS
University of Wisconsin-Green Bay Green Bay, Wisconsin 54302 (414) 465-2121	Dietetic Technician Environmental Health Technologist/Technician Medical Technologist Nutritionist Water and Wastewater Technologist/Technician Pre-professional curricula(consult the school for information about studies in preparation for professional careers) Health Care Administrator
University of Wisconsin-La Crosse La Crosse, Wisconsin 54601 (608) 785-8000	Community Health Educator Dietitian Medical Records Administrator Medical Technologist Nuclear Medicine Technologist Physical Therapist School Health Educator Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
University of Wisconsin-Madison Madison, Wisconsin 53706 (608) 262-3961	Radiologic(X-Ray) Technologist(affiliated with University Hospital) Biomedical Engineer Cytotechnologist(affiliated with University Hospital) Dietitian Health Care Administrator Medical Technologist Nutritionist Occupational Therapist Physical Therapist Pharmacist Registered Nurse(Baccalaureate Degree) School Health Educator Speech Pathologist and Audiologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers) Physician Physician's Assistant
University of Wisconsin-Milwaukee Milwaukee, Wisconsin 53201 (414) 963-4572	Medical Records Administrator Medical Technologist Music Therapist Occupational Therapist Registered Nurse(Baccalaureate) School Health Educator Speech Pathologist and Audiologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers

SCHOOL	PROGRAMS
University of Wisconsin-Oshkosh Oshkosh, Wisconsin 54901 (414) 424-1030	Medical Technologist Environmental and Public Health Music Therapist Registered Nurse (Baccalaureate) School Health Educatior Speech Pathologist and Audiologist Psychologist Pre-professional curricula (consult the school for information about studies in preparation for professional careers)
University of Wisconsin-Parkside Kenosha, Wisconsin 53141 (414) 553-2121	Environmental and Public Health Medical Technologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
University of Wisconsin-Platteville Platteville, Wisconsin 53818 (608) 342-1125	Medical Technologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
University of Wisconsin-River Falls River Falls, Wisconsin 54022 (715) 425-3223	Environmental Health Technologist/ Technician School Health Educator Speech Pathologist and Audiologist Pre-professional curricula (consult the school for information about studies in preparation for professional careers)
University of Wisconsin-Stevens Point Stevens Point, Wisconsin 54481 (715) 346-0123	Psychologist Dietitian Medical Technologist Nutritionist School Health Educator Speech Pathologist and Audiologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers) Water and Wastewater Technologist/ Technician
University of Wisconsin-Stout Menomonie, Wisconsin 54751 (715) 232-0123	Psychologist

SCHOOL	PROGRAMS
University of Wisconsin-Superior Superior, Wisconsin 54880 (715) 392-8101	Medical Technologist School Health Educator Art Therapist Psychologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Univeristy of Wisconsin-Whitewater Whitewater, Wisconsin 53190 (414) 472-1234	School Health Educator Speech Pathologist and Audiologist Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Viterbo College 815 South Ninth Street La Crosse, Wisconsin 54601 (608) 784-0040	Dietitian Medical Records Administrator Medical Technologist Registered Nurse (Baccalaureate) Pre-professional curricula(consult the school for information about studies in preparation for professional careers)
Waukesha County Technical Institute 800 Main Street Pewaukee, Wisconsin 53072 (414) 691-3200	Licensed Practical Nurse Medical Assistant Nursing Assistant Registered Nurse(Associate Degree) Operating Room Assistant Ward Clerk
Western Wisconsin Technical Institute Eighth and Pine Streets La Crosse, Wisconsin 54601 (608) 782-6238	Biomedical Equipment Technician Dental Assistant Electroencephalograph(EEG) Technician Licensed Practical Nurse Medical Assistant Medical Laboratory Technician Medical Records Technician Medical Secretary Nursing Assistnat Operating Room Assistant Radiologic(X-Ray) Technologist Registered Nurse (Associate Degree) Ward Clerk
Wisconsin Indianhead Technical Institute 2100 Beaser Avenue Ashland, Wisconsin 54806 (715) 682-4591	Nursing Assistant

SCHOOL	PROGRAMS
Wisconsin Indianhead Technical Institute 1019 South Knowles Avenue New Richmond, Wisconsin 54017 (715) 246-6561	Medical Assistant Nursing Assistant Ward Clerk
Wisconsin Indianhead Technical Institute 1900 College Drive Rice Lake, Wisconsin 54868 (715) 234-7082	Nursing Assistant
Wisconsin Indianhead Technical Institute 600 North 21st Street Superior, Wisconsin 54880 (715) 394-6677	Licensed Practical Nurse Nursing Assistant

HOSPITAL EDUCATION AND TRAINING PROGRAMS

PROGRAM LISTING

HOSPITAL LISTING

HOSPITAL EDUCATION AND TRAINING PROGRAMS

PROGRAM LISTING

CARDIOGRAPHY TECHNICIAN

St. Luke's Hospital(Milwaukee)

CERTIFIED LABORATORY ASSISTANT

St. Luke's Hospital(Milwaukee)
Waupun Memorial Hospital

CYTOTECHNOLOGIST

Kenosha Memorial Hospital
Milwaukee County Medical Complex
St. Joseph's Hospital(Marshfield)

DENTIST

Mount Sinai Medical Center(Milwaukee)

DIETITIAN

Kenosha Memorial Hospital
St. Joseph's Hospital(Marshfield)
University of Wisconsin Hospitals(Madison)

ELECTROCARDIOGRAPH (EKG) TECHNICIAN

Family Hospital(Milwaukee)
Lutheran Hospital(Milwaukee)
St. Mary's Hospital(Milwaukee)

ELECTROENCEPHALOGRAPH (EEG) TECHNICIAN

University of Wisconsin Hospitals(Madison)

EMERGENCY MEDICAL TECHNICIAN/PARAMEDIC

St. Elizabeth Hospital(Appleton)

HEALTH CARE ADMINISTRATOR

Mount Sinai Medical Center(Milwaukee)
St. Joseph's Hospital(Marshfield)
University of Wisconsin Hosptials(Madison)

HISTOLOGIC TECHNICIAN

- Madison General Hospital
- Marshfield Clinic
- Milwaukee County Medical Complex
- Sacred Heart Hospital(Eau Claire)
- St. Joseph's Hospital(Marshfield)
- Veterans Hospital (Wood)

LICENSED PRACTICAL NURSE

- Kenosha Memorial Hospital
- St. Catherine's Hospital(Kenosha)
- St. Anthony Hospital(Milwaukee)
- St. Vincent Hospital(Green Bay)
- St. Francis Hospital(Milwaukee)
- Theda Clark Regional Medical Center(Neenah)

MEDICAL ASSISTANT

- St. Francis Hospital(Milwaukee)

MEDICAL LABORATORY TECHNICIAN

- St. Francis Hospital(Milwaukee)
- St. Anthony Hospital(Milwaukee)

MEDICAL TECHNOLOGIST

- Deaconess Hospital(Milwaukee)
- Family Hospital(Milwaukee)
- Kenosha Memorial Hospital
- Luther Hospital(Eau Claire)
- Lutheran Hospital(Milwaukee)
- Madison General Hospital
- Mercy Medical Center(Oshkosh)
- Milwaukee County Medical Complex
- Mount Sinai Medical Center(Milwaukee)
- Sacred Heart Hospital(Eau Claire)
- St. Agnes Hospital(Fond du Lac)
- St. Catherine's Hospital(Kenosha)
- St. Elizabeth Hospital(Appleton)
- St. Joseph's Hospital (Marshfield)
- St. Joseph's Hospital(Milwaukee)
- St. Luke's Memorial Hospital(Racine)
- St. Marys Hospital Medical Center(Madison)
- St. Michael Hospital(Milwaukee)
- St. Michael's Hospital(Stevens Point)
- St. Vincent Hospital(Green Bay)
- Theda Clark Regional Medical Center(Neenah)
- University of Wisconsin Hospitals(Madison)
- Waukesha Memorial Hospital
- Wausau Hospitals, Inc.

MEDICAL TRANSCRIPTIONIST

St. Luke's Hospital(Milwaukee)
St. Michael's Hospital(Milwaukee)

NUCLEAR MEDICINE TECHNOLOGIST

Milwaukee County Medical Complex
University of Wisconsin Hosptials(Madison)

NURSE ANESTHETIST

St. Francis Hospital(LaCrosse)
Milwaukee County Medical Complex
Mercy Medical Center(Oshkosh)
Wausau Hospitals, Inc.

NURSING ASSISTANT

St. Joseph's Hospital(Milwaukee)
St. Luke's Hospital(Milwaukee)
University of Wisconsin Hospitals(Madison)
Veterans Administration Hospital(Wood)

OCCUPATIONAL THERAPIST

Kenosha Memorial Hospital
Mount Sinai Medical Center(Milwaukee)
University of Wisconsin Hospitals(Madison)

OCCUPATIONAL THERAPY ASSISTANT

Theda Clark Regional Medical Center(Neenah)

OPERATING ROOM ASSISTANT

Mount Sinai Medical Center(Milwaukee)
St. Catherine's Hospital(Kenosha)
Theda Clark Regional Medical Center(Neenah)
University of Wisconsin Hospitals(Madison)
Verterans Administration Hospital(Wood)

OSTEOPATHIC PHYSICIAN

Lakeview Hospital(Wauwatosa)

PHARMACIST

Kenosha Memorial Hospital
Mount Sinai Medical Center(Milwaukee)
St Joseph's Hospital(Marshfield)
St. Michael Hospital(Milwaukee)
University of Wisconsin Hospitals(Madison)

PHARMACY TECHNICIAN

University of Wisconsin Hospitals(Madison)
Verterans Administration Hosptial(Wood)

PHYSICAL THERAPIST

Mount Sinai Medical Center(Milwaukee)
University of Wisconsin Hospitals(Madison)

PHYSICAL THERAPY ASSISTANT

Northwest General Hospital(Milwaukee)

PHYSICIAN

Mount Sinai Medical Center(Milwaukee)

PHYSICIANS ASSISTANT

Marshfield Clinic

RADIATION THERAPY TECHNOLOGIST

St. Joseph's Hospital(Milwaukee)

RADIOLOGIC (X-RAY) TECHNOLOGIST

Bellin Memorial Hospital(Green Bay)
Deaconess Hospital(Milwaukee)
Family Hospital(Milwaukee)
Kenosha Memorial Hospital
Luther Hospital(Eau Claire)
Lutheran Hospital(Milwaukee)
Madison General Hospital
Mercy Medical Center(Oshkosh)
Milwaukee County Medical Complex
St. Anges Hospital(Fond du Lac)
St. Catherine's Hospital(Kenosha)
St. Joseph's Hospital(Marshfield)
St. Joseph's Hospital(Milwaukee)
St. Luke's Hospital(Milwaukee)
St. Luke's Memorial Hospital(Racine)
St. Mary's Hospital Madical Center(Madison)
St. Mary's Hospital(Milwaukee)
St. Mary's Medical Center(Racine)
St. Mary's Hospital(Rhinelander)
St. Michael Hospital(Milwaukee)
University of Wisconsin Hospitals(Madison)
Veterans Administration Hospital(Wood)
Waukesha Memorial Hospital
Theda Clark Regional Medical Center (Neenah)

REGISTERED NURSE(DIPLOMA, ASSOCIATE DEGREE and BACCALAURRATE DEGREE)

Bellin Memorial Hospital(Green Bay)
Deaconess Hospital(Milwaukee)
Kenosha Memorial Hospital
Madison General Hospital
Mercy Medical Center(Oshkosh)
Milwaukee County Medical Complex
Mount Sinai Medical Center (Milwaukee)
St Catherine's Hospital(Kenosha)
St. Joseph's Hospital(Marshfield)
St. Luke's Memorial Hospital(Racine)

RESPIRATORY THERAPIST

Theda Clark Regional Medical Center(Neenah)
University of Wisconsin Hospitals(Madison)
Veterans Administration Hospital(Wood)

WARD CLERK

Lutheran Hospital(Milwaukee)
St. Catherine's Hospital(Kenosha)
St. Joseph's Hospital(Milwaukee)
St. Luke's Hospital(Milwaukee)
St. Mary's Hospital(Milwaukee)
Theda Clark Regional Medical Center(Neenah)
Veterans Administration Hospital(Wood)

HOSPITAL EDUCATION AND TRAINING PROGRAMS

HOSPITAL LISTING

HOSPITAL	PROGRAMS
Bellin Memorial Hospital 744 South Webster Avenue Green Bay, Wisconsin 54305 (414) 468-3500	Radiologic(X-Ray) Technologist Registered Nurse(Diploma)
Deaconess Hospital 620 North 19th Street Milwaukee, Wisconsin 53233 (414) 923-9600	Medical Technologist Radiologic(X-Ray) Technologist Registered Nurse(Diploma)
Family Hospital 2711 West Wells Street Milwaukee, Wisconsin 53208 (414) 344-9400	Medical Technologist Radiologic (X-Ray) Technologist Electrocardiograph (EKG) Technician
Kenosha Memorial Hosptial 6308 Eighth Avenue Kenosha, Wisconsin 53140	Pharmacist(Internship) Cytotechnologist Medical Technologist Radiologic (X-Ray) Technologist Dietitian (Internship) Occupational Therapist (Internship) Licensed Practical Nurse (Affiliation with Gateway Technical Institute) Registered Nurse (Associate Degree affiliation with Gateway Technical Institute)
Lakeview Hospital 10010 West Bluemound Road Wauwatosa, Wisconsin 53226 (414) 771-5200	Osteopathic Physician(Internship)
Luther Hospital 310 Chestnut Street Eau Claire, Wisconsin 54701	Medical Technologist Radiologic (X-Ray) Technologist
Lutheran Hospital 2200 West Kilbourn Avenue Milwaukee, Wisconsin 53233 (414) 344-8800	Medical Technologist Radiologic (X-Ray) Technologist Electrocardiograph (EKG) Technician Ward Clerk

HOSPITAL	PROGRAMS
Madison General Hospital 202 South Park Street Madison, Wisconsin 53715 (608) 267-6000	Histologic Technician Medical Technologist Radiologic (X-Ray) Technologist Registered Nurse (Diploma)
Marshfield Clinic Marshfield, Wisconsin 54449	Histologic Technician Physician's Assistant(Affiliation with University of Wisconsin-Extension Wood County)
Mercy Medical Center 631 Hazel Street Oshkosh, Wisconsin 54901 (414) 231-3300	Medical Technologist Nurse Anesthetist Radiologic (X-Ray) Technologist Registered Nurse(Diploma)
Milwaukee County Medical Complex 8700 West Wisconsin Avenue Milwaukee, Wisconsin 53226 (414) 257-7996	Cytotechnologist Histologic Technician Medical Technologist Nuclear Medicine Technologist Nurse Anesthetist Radiologic (X-Ray) Technologist Registered Nurse(Diploma)
Mount Sinai Medical Center 950 North 12th Street Milwaukee, Wisconsin 53233 (414) 289-8200	Health Care Administrator(Preceptor for residency) Dentist(Post graduate residency) Medical Technologist Occupational Therapist Pharmacist(Internship) Operating Room Assistant Physical Therapist Registered Nurse(Associate and Baccalaureate Degree) Physician (Post graduate residency)
Northwest General Hospital 5310 West Capitol Drive Milwaukee, Wisconsin 53216 (414) 447-8543	Physical Therapy Assistant (Affiliation with Milwaukee Area Technical College)
Sacred Heart Hospital 900 West Clairemont Avenue Eau Claire, Wisconsin 54701 (715) 839-4121	Histologic Technician Medical Technologist
St. Agnes Hospital 430 East Division Street Fond du Lac, Wisconsin 54935 (414) 921-2300	Medical Technologist Radiologic (X-Ray) Technologist

HOSPITAL	PROGRAMS
St. Anthony Hospital 1004 North 10th Street Milwaukee, Wisconsin 53233 (414) 271-1965	Licensed Practical Nurse(Affiliation with Milwaukee Area Technical College) Medical Laboratory Technician (Affiliation with Milwaukee Area Technical College)
St. Catherine's Hospital 3556 Seventh Avenue Kenosha, Wisconsin 53140 (414) 656-3011	Licensed Practical Nurse(Affiliation with Gateway Technical Institute) Medical Technologist(Affiliation with Gateway Technical Institute) Operating Room Assistant(Affiliation with Gateway Technical Institute) Radiologic(X-Ray) Technologist(Affiliation with Gateway Technical Institute) Registered Nurse(Associate Degree) (Affiliation with Gateway Technical Institute) Ward Clerk(Affiliation with Gateway Technical Institute)
St. Elizabeth Hospital 1506 South Oneida Street Appleton, Wisconsin 54911 (414) 731-5261	Emergency Medical Technician/Paramedic (Affiliation with Fox Valley Technical Institute) Medical Technologist
St. Francis Hospital 709 South Tenth Street LaCrosse, Wisconsin 54601 (608) 785-0940	Nurse Anesthetist
St. Francis Hospital 3237 South 16th Street Milwaukee, Wisconsin 53215 (414) 647-5000	Licensed Practical Nurse(Affiliation with Milwaukee Area Technical College) Medical Assistant(Affiliation with Milwaukee Area Technical College) Medical Laboratory Technician (Affiliation with Milwaukee Area Technical College)
St. Joseph's Hospital 611 St. Joseph Avenue Marshfield, Wisconsin 54449 (715) 387-1713	Cytotechnologist Dietitian(Internship) Health Care Administrator Histologic Technician Pharmacist(Internship) Radiologic(X-Ray) Technologist Registered Nurse(Diploma)

HOSPITAL	PROGRAMS
St. Joseph's Hospital 500 West Chambers Street Milwaukee, Wisconsin 53210 (414) 447-2000	Medical Technologist(Affiliation with Marquette University) Nursing Assistant Radiation Therapy Technologist Radiologic (X-Ray) Technologist Ward Clerk
St. Luke's Hospital 2900 West Oklahoma Avenue Milwaukee, Wisconsin 53215 (414) 647-6423	Certified Laboratory Assistant Radiologic (X-Ray) Technologist Cardiography Technician Medical Transcriptionist Ward Clerk Nursing Assistant
St. Luke's Memorial Hospital 1320 Wisconsin Avenue Racine, Wisconsin 53403 (414) 636-2011	Medical Technologist Radiologic(X-Ray) Technologist Registered Nurse(Diploma)
St. Mary's Hospital Medical Center 707 South Mills Street Madison, Wisconsin 53715 (608) 251-6100	Medical Technologist Radiologic (X-Ray) Technologist
St. Mary's Hospital 2323 North Lake Drive Milwaukee, Wisconsin 53211	Electrocardiography (EKG) Technician Radiologic(X-Ray) Technologist Ward Clerk
St. Mary's Medical Center 3801 Spring Street Racine, Wisconsin 53405 (414) 636-4011	Medical Technologist Radiologic(X-Ray) Technologist
St. Mary's Hospital 1044 Kabel Avenue Rhinelander, Wisconsin 54501	Radiologic(X-Ray) Technologist
St. Michael Hospital 2400 West Villard Avenue Milwaukee, Wisconsin 53209 (414) 263-8114	Medical Technologist Medical Transcriptionist Pharmacist(Internship) Radiologic(X-Ray) Technologist
St. Michael's Hospital 900 Illinois Avenue Stevens Point, Wisconsin 54481 (715) 344-4400	Medical Technologist

HOSPITAL	PROGRAMS
St. Vincent Hospital 835 South Van Buren Green Bay, Wisconsin 54305	Licensed Practical Nurse Medical Technologist
Theda Clark Regional Medical Center 130 Second Street Neenah, Wisconsin 54956 (414) 725-4311	Medical Technologist Radiologic (X-Ray) Technologist Licensed Practical Nurse(Affiliation with Fox Valley Technical Institute) Operating Room Assistant(Affiliation with Fox Valley Technical Institute) Respiatory Therapist(Affiliation with Fox Valley Technical Institute) Occupational Therapy Assistant(Affiliation with Fox Valley Technical Institute) Ward Clerk
University of Wisconsin Hospitals Center for Health Sciences University of Wisconsin-Madison 1300 University Avenue Madison, Wisconsin 53706	Occupational Therapist(Residency) Health Care Administrator(Residency) Dietitian(Internship) Electroencephalograph(EEG) Technician Medical Technologist Radiologic(X-Ray)Technologist Physical Therapist(Residency) Nursing Assistant Respiartory Therapist Pharmacist(Internship and Residency) Pharmacy Technician Nuclear Medicine Technologist Operating Room Assistant(Affiliation with Madison Area Technical College)
Veterans Administration Hospital Wood, Wisconsin 53193 (414) 384-2000	Respiratory Therapist Operating Room Assistant Pharmacy Technician Histologic Technician Radiologic(X-Ray) Technologist Ward Clerk Nursing Assistant
Waukesha Memorial Hospital 725 American Avenue Waukesha, Wisconsin 53186 (414) 544-2011	Medical Technologist Radiologic (X-Ray) Technologist
Waupun Memorial Hospital 620 West Brown Street Waupun, Wisconsin 53963 (414) 324-5581	Certified Laboratory Assistant
Wausau Hospitals, Inc. Wausau, Wisconsin 54401 (715) 845-5262	Medical Technologist Nurse Anesthetist